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Water Chemistry of Some Lakes and Channels in the Mackenzie Delta and on the Tuktoyaktuk Peninsula, N.W.T., 1986

C. Anema, R.E. Hecky, S. Himmer
and S.J. Guildford

Central and Arctic Region
Department of Fisheries and Oceans
Winnipeg, Manitoba R3T 2N6

May 1990

Canadian Data Report of Fisheries and Aquatic Sciences No. 729

Fisheries and Oceans Pêches et Océans

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Canadian Data Report of Fisheries and Aquatic Sciences

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This is the 30th Data Report
from the Central and Arctic Region, Winnipeg

90-05445/

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Cat. no. Fs 97-13/729E ISSN 0706-6465

Correct citation for this publication is:

ANEMA, C., R.E. HECKY, S. HIMMER, AND S.J. GUILDFORD. 1990. Water chemistry of some lakes and channels in the Mackenzie Delta and on the Tuktoyaktuk Peninsula, N.W.T., 1986. *Can. Data Rep. Fish. Aquat. Sci.* 729: vi + 63 p.

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Abstract

ANEMA, C., R.E. HECKY, S. HIMMER, AND S.J. GUILDFORD. 1990. Water chemistry of some lakes and channels in the Mackenzie Delta and on the Tuktoyaktuk Peninsula, N.W.T., 1986. *Can. Data Rep. Fish. Aquat. Sci.* 729: vi + 63 p.

Chemical and water quality data are presented for two lakes on the Tuktoyaktuk Peninsula, one lake northeast of Inuvik in the Caribou Hills and five lakes and four channels in the Mackenzie Delta. All samples were taken in 1986 during the open water season.

Key words: water quality; water chemistry; Mackenzie Delta; Tuktoyaktuk Peninsula; lakes; channels.

Résumé

ANEMA, C., R.E. HECKY, S. HIMMER, AND S.J. GUILDFORD. 1990. Water chemistry of some lakes and channels in the Mackenzie Delta and on the Tuktoyaktuk Peninsula, N.W.T., 1986. *Can. Data Rep. Fish. Aquat. Sci.* 729: vi + 63 p.

On présente des données sur la chimie et sur la qualité de l'eau de deux lacs situés sur la péninsula de Tuktoyaktuk, d'un lac au nord-est de Inuvik dans les monts Caribou et de cinq lacs et des quatre chenaux dans le delta du Mackenzie. Tous les échantillons ont été prélevés en 1986 pendant la saison où la surface de l'eau n'était pas envahie par les glaces.

Mots-clés: qualité de l'eau; chimie de l'eau; delta du Mackenzie; péninsule de Tuktoyaktuk; lacs; chenaux.

Introduction

In 1985 a variety of studies were undertaken to examine the chemistry and limnology of lakes and channels in the Mackenzie Delta and on the Tuktoyaktuk Peninsula in anticipation of possible oil and gas developments in the Beaufort Sea. These studies were continued in 1986. The purpose of this report is to present the chemistry and water quality data obtained in 1986. The 1985 data have been reported previously (Anema et al. 1990).

Study area

The study areas are the same as in 1985 (Anema et al. 1990) (Fig. 1 to 3). In the Mackenzie Delta the sampling program was expanded to include the high closure (Marsh 1986) NRC Lake and the inflow and outflow channels of Skidoo Lake. These channels are referred to as Skidoo Lake Channel West and Skidoo Lake Channel East. The former links Skidoo Lake with New Lake, also new in this study, while the latter links Skidoo Lake with Big Lake Channel. Flow in these channels depends on the relative elevations of Skidoo Lake and Big Lake Channel. Because suspended material plays a very significant role in the ecology of the Mackenzie Delta and because it is a major waterway, the East Channel channel was sampled frequently for suspended material throughout the summer. Noell Lake, northeast of Inuvik in the Caribou Hills, is also new in this study. The hydrologic cycle of this lake is similar to that of the Kukjuktuk Lakes (Anema et al. 1990). The bathymetry of Noell Lake has been presented by Read and Roberge (1986). On the Tuktoyaktuk Peninsula only lakes 10 and 18 were sampled in 1986.

Methods

Analyses or measurements done at Inuvik are labelled as Inuvik chlorophyll-a, *in situ* pH and *in situ* specific conductance. These analyses, when performed by the analytical unit of the FWI (Freshwater Institute) are prefixed "FWI".

Two types of samples were obtained in the field. The first type, referred to as a chemistry sample, was used to measure all physical, chemical (including suspended sediment), and biological variables. The second type, referred to as a suspended sediment sample, was used only to analyze variables relating to suspended matter; mass of filtered suspended solids (FSS) and the absorbances at 543 nm and 455 nm (A_{543}, A_{455}) and in the case of East Channel, suspended inorganic carbon (SIC). *In situ* measurements and sampling procedures for the chemistry samples in the field and sample processing procedures in the laboratory were as in 1985 (see Anema et al. 1990) except that only two 500 mL subsamples of water were sent to the FWI analytical unit in polyethylene bottles. One of these was unfiltered water used to measure FWI specific conductance, FWI pH, SRSi (soluble reactive silica) and TA (total alkalinity) while the other was filtered water used to measure TDN (total dissolved nitrogen), TDP (total dissolved phosphorous), DOC (dissolved organic carbon), SO_4^{2-}, Cl^-, Na^+, K^+, Ca^{2+}, Mg^{2+}, TDFe, (total dissolved iron), TDMn (total dissolved manganese) and DIC (dissolved inorganic carbon). Before measuring the FWI pH and before analyzing for DIC the respective portions taken were equilibrated with atmospheric CO_2. The filtered water was obtained in the preparation of the suspended fractions, SNC (suspended nitrogen and suspended carbon on a single filter), SP (suspended phosphorous) and chlorophyll-a. Analyses at the FWI were done by the methods of Stainton et al. (1977). Suspended sediment samples were taken near the surface from the East Channel on a near daily basis and three times a week from the Skidoo Lake channels. Both chemistry and suspended sediment samples were taken from East Channel; the chemistry samples were taken near the surface in midstream while the suspended sediment samples were taken near the surface from the DIAND (Department of Indian Affairs and Northern Development) dock

about one and a half kilometres downstream from where the chemistry samples were taken. The suspended sediment samples were taken in 500 mL polyethylene bottles.

Preweighed Whatman GF/C filter discs used for both types of samples prior to July 23 were prepared by the analytical unit of the FWI. After that date the preweighed filters used for the suspended sediment samples were prepared at the Inuvik laboratory. All filter discs were ignited before use (Stainton et al. 1977). One unused filter disc was analyzed as a blank for each of the SN (suspended nitrogen), SP (suspended phosphorous) and TSC (total suspended carbon) analyses with each group of samples prepared.

SIC was analyzed from the FSS filters after weighings were complete. Most SIC analyses were done on FSS filters which had been stored for a year. Distilled water (20 mL) was added to a 50 mL syringe and the plunger removed so that the FSS filter could be added. After adding the FSS filter the plunger was reinserted and all air removed from the syringe. From this stage on the sample was analyzed as a DIC sample as per Stainton et al. (1977).

Results

All data, except chlorophyll-a and FSS, which are reported in $\mu g \cdot L^{-1}$ and $mg \cdot L^{-1}$, respectively, are reported in μmoles per litre. Table 1 lists the constants used to convert data not received in molar units. Filter blanks are presented on a per disc basis in Table 2. Reported data, SP, SN and TSC, have not been corrected for these blanks. Analytical results are reported in Tables 3 to 5 and in graphic form, to emphasize the temporal variation, in Fig. 4 to 30.

The *in situ* temperature, specific conductance and pH of the chemistry samples have been reported previously by Fee et al. (1988). For the sake of completeness of the water quality data, and to permit comparisons of *in situ* and FWI measurements, this information is also included here. For the suspended sediment samples only the *in situ* temperature data are available.

Noell Lake, Lake 10 and Lake 18 chemistry and water quality data are presented in Table 3. The chemistry and water quality data for the Mackenzie Delta lakes and channels are presented in Table 4. Suspended sediment data for East Channel and the Skidoo Lake channels are presented in Table 5. Temperature data for East Channel are found in Table 5. Mary Ferguson at the National Hydrology Research Institute (NHRI) in Saskatoon has temperature and flow data for the Skidoo Lake channels. East Channel suspended sediment data obtained from chemistry samples are found in both Tables 4 and 5.

Table 6 reports maximum, minimum, mean, sample standard deviation and the number of data points available for Kukjuktuk Lake 10, Kukjuktuk Lake 18 and Noell Lake. The same statistics for the Mackenzie Delta lakes, East Channel and Big Lake Channel chemistry data are reported in Table 7 and the statistics for the suspended sediment data of East Channel, Skidoo Lake Channel East and Skidoo Lake Channel West are reported in Table 8. Statistics for East Channel suspended sediment data obtained from the chemistry samples have been omitted from Table 7 but are included in Table 8. Table 9 compares the 1986 statistics in Table 6 and Table 7 to the 1985 statistics, for those lakes and channels that were sampled in both years.

Discussion

Comparison of the 1986 data to the 1985 data

In this section the maximum, minimum and mean of the 1986 data are compared to the same statistics of the 1985 data. This is accomplished by means of ratios; 1986 statistic:1985 statistic. The simple means calculated from the data are affected by sampling frequency and sampling distribution in time. These factors in 1986 are similar in most cases to those in 1985. The comparisons are listed in Table 9.

A difference of 10% more or less in 1986 than in 1985 (ratios 0.9 to 1.1) is assumed to indicate little or no change from 1985. Small differences at low concentration may cause large ratios and caution should be used in interpreting the ratios as indicators of change.

The mean concentrations of the suspended fractions (SN, SP, TSC and FSS) are greater in 1986 than in 1985 (ratios 1.25 to 3.65) in most Delta and Kukjuktuk waters. The exceptions are South Lake and South Lake Bay mean SN, which in 1986 are down to 0.78 and 0.81, respectively, of the 1985 values, SN in Skidoo Lake and TSC in South Lake Bay which are similar (within 10%) to the 1985 values. The Kukjuktuk Lake 18 mean SN and mean SP, which in 1986 have ratios of 1.11 and 1.13 times the 1985 values, are only marginally different. Maximum concentrations in 1986 are up from 1985 maxima by a factor between 1.2 and 7. The exceptions again are South Lake and South Lake Bay SN, 0.52 and 0.81, respectively, and South Lake Bay TSC (1.02) and Skidoo Lake TSC (1.15). Most minimum concentrations are also greater in 1986, or approximately the same as (within 10%), in 1985. The exceptions are SN values from East Channel, Skidoo Lake, South Lake and South Lake Bay, FSS values from South Lake Bay and all four suspended variables from Kukjuktuk Lake 10.

In 1986 mean chlorophyll-a concentrations in the Delta are lower (channels and South Lake Bay) or the same as (within 10%) (South Lake and Skidoo Lake) while the mean chlorophyll-a concentrations in Kukjuktuk Lake 10 and Kukjuktuk Lake 18 are greater than in 1985. The exceptions are the FWI chlorophyll-a concentrations in Big Lake Channel (due to a probable error on August 18) and Skidoo Lake FWI chlorophyll-a (ratio of 1.14). Maximum chlorophyll-a concentrations in 1986 are greater than or the same (within 10%) as in 1985. The exceptions are the Delta channels which both have the ratio 0.39 in the Inuvik chlorophyll-a analysis and the East Channel which in the FWI chlorophyll-a analysis has the ratio 0.47. The FWI chlorophyll-a maximum for Big Lake Channel appears to be in error (compare FWI and Inuvik chlorophyll-a and see Fig. 33). All minimum chlorophyll-a concentrations are less in 1986 than in 1985 (0.10 to 0.56) except in Kukjuktuk Lake 18 which is up to 1.25 (Inuvik) and 1.26 (FWI) the 1985 value. The correlation of chlorophyll-a with FSS is negative in the Delta and positive in the Kukjuktuk lakes (Anema et al. 1990).

Maximum, minimum and mean TDP in 1986 are higher than in 1985 in nearly all lakes, including the Kukjuktuk lakes, and channels. The exceptions are the Kukjuktuk Lake 10 minimum and Kukjuktuk Lake 18 maximum (both are the same as 1985).

In East Channel, Big Lake Channel and Skidoo Lake the mean DOC in 1986 is up to 1.23, 1.27 and 1.17, respectively, of the 1985 means. In the Kukjuktuk lakes and the other Delta lakes the 1986 mean DOC concentrations are similar (within 10%) to the 1985 means. The maximum DOC in 1986 is up from 1985 (1.11 to 1.56) in all waters studied except Kukjuktuk Lake 18, which is down to 0.90 the 1985 maximum. The minimum DOC in 1986 is up in the Delta channels and South Lake (1.18–1.24) and similar to the 1985 values in the other lakes studied.

Maximum and mean concentrations of SRSi in the Delta are similar (within 10%) to the 1985 concentrations except in Skidoo Lake where they are 1.15 and 1.20, respectively, while in the Kukjuktuk Lakes they are greater in 1986 (1.35 to 2.51). Minimum SRSi is greater in 1986 than in 1985 except in the Delta channels (0.88 and 0.90).

Mean Cl^- and SO_4^{2-} concentrations in 1986 are similar to the 1985 means (within 10%). The exceptions are Kukjuktuk Lake 10 (0.77 and 0.55, respectively) and less significantly, mean SO_4^{2-} concentrations in East Channel and Kukjuktuk Lake 18 (both 1.11). Minimum chloride concentrations in 1986, except for Kukjuktuk Lake 10 (0.82) are as in 1985, while minimum SO_4^{2-} concentration in 1986 are up (1.17 to 1.75) from the 1985 values. In the Delta channels maximum Cl^- concentrations are down (0.86) while maximum SO_4^{2-} concentrations are up (1.17 and 1.13) from

1985. Maximum Cl^- and SO_4^{2-} concentrations in Kukjuktuk Lake 10 are down (0.74 and 0.56) compared to the 1985 maxima. In the other waters studied, maximum Cl^- and SO_4^{2-} concentrations are within 10% of the 1985 values.

Mean concentrations of Na^+, K^+, Ca^{2+} and Mg^{2+} in 1986 are within 10% of the 1985 mean concentrations in all lakes except South Lake and South Lake Bay where K^+ has ratios of 0.85 and 0.86, respectively, Kukjuktuk Lake 18 where Na^+ has a ratio of 0.86 and Kukjuktuk Lake 10 where all four cations listed above have ratios 0.72, 0.82, 0.81 and 0.75, respectively. Maximum Ca^{2+} and Mg^{2+} concentrations in 1986 are within 10% of the 1985 values except in Kukjuktuk Lake 10 where they are 0.88 and 0.83, respectively. Maximum Na^+ concentrations in 1986 are 0.92 to 0.84 of the 1985 maxima except in Kukjuktuk Lake 10 where the maximum Na^+ concentration is down to 0.72 of the 1985 maximum. Maximum K^+ concentrations in the Delta channels are up (1.12 and 1.24) from the 1985 values and within 10% of the 1985 values in South Lake Bay, Skidoo Lake and Kukjuktuk Lake 18. In South Lake and Kukjuktuk Lake 10 maximum K^+ concentrations in 1986 are 0.86 and 0.89, respectively, of the 1985 values.

Maximum, minimum and mean TA and Inuvik TIC in 1986 are all within 10% of the 1985 values except in Kukjuktuk Lake 10 where TA values are down to 0.86, 0.68 and 0.80, respectively, and TIC minimum and mean are down to 0.69 and 0.87, respectively, of the 1985 values. The maximum TIC in South Lake is 0.84 of the 1985 value.

All maximum and mean *in situ* specific conductances in 1986 are within 10% of the 1985 values except Kukjuktuk Lake 10 values, which are 0.84 and 0.78, respectively, of the 1985 values. All minimum specific conductances in 1986 are down from the 1985 values except those of East Channel and Big Lake Channel. The relative decrease is greater in the Kukjuktuk lakes (0.64 and 0.47) than in the Delta lakes (0.86, 0.89 and 0.88). Maximum, minimum and mean FWI specific conductances are within a small fraction, 4%, of the 1985 values except the Kukjuktuk Lake 18 minimum (1.11) and the Kukjuktuk Lake 10 values, 0.84, 0.79 and 0.80, respectively.

All maximum, minimum and mean FWI and *in situ* pH are within 10% of the 1985 values.

Delta lakes and channels

As in 1985, East Channel and Big Lake Channel are very similar to each other as are the pair of lakes, South Lake and South Lake Bay. Skidoo Lake and New Lake are also very similar to each other. NRC Lake is significantly different from the other Delta waters.

NRC Lake

NRC Lake is distinct from the other Delta lakes and channels in FWI DIC, Inuvik TIC, SRSi, Ca^{2+}, K^+, TA and FWI and *in situ* specific conductances, (Fig. 10a and 11a, 16b, 19a, 21, 25a, 29a and 30a, respectively). Early in June these variables have a much higher value in NRC Lake than in the other delta lakes and channels. They then decrease to levels the same as (specific conductance, Fig. 29a and 30a) or considerably less than (FWI DIC, Inuvik TIC, SRSi, Ca^{2+} , K^+, and TA, Fig. 10a, 11a, 16b, 19a, 21and 25a) the other Delta lakes and channels. SRSi decreases immediately from the spring high (Fig. 16b) while other variables, FWI DIC, Inuvik TIC, Ca^{2+}, K^+, TA and FWI and *in situ* specific conductances, (Fig. 10a, 11a, 19a, 21, 25a, 29a and 30a, respectively) increase to a maximum before decreasing in concentration.

TDN, FWI pH and *in situ* pH, (Fig. 15b, 27a and 28b respectively) in NRC Lake are initially similar to, while DOC (Fig. 13b) is initially slightly below, that of the other Delta waters; these variables then increase to a maximum in mid-August (pH, Fig. 27a and 28b) or increase continuously to the end of the summer (DOC, TDN, Fig. 13b and 15b, respectively). In the other Delta waters these variables decrease (DOC, TDN), remain approximately constant (*in situ* pH) or increase slightly (FWI pH) during the summer. The temporal pattern of vari-

ation of TDP and organic acids are similar to that of TDN and DOC but their concentrations become higher than in the other delta waters only in mid-July.

Concentrations of SO_4^{2-}, Mg^{2+}, Na^+ and Cl^- (Fig. 17, 18a, 20a and 22, respectively) in NRC Lake are much higher than in the other Delta waters. Mg^{2+} concentration in NRC Lake is significantly above that of the other delta waters (Fig. 18a) throughout the summer. It exhibits a 50% increase in concentration in June and then remains constant through the summer. The SO_4^{2-}, Na^+ and Cl^- (Fig. 17, 20a and 22, respectively) concentrations all exhibit increasing concentrations in June and, although the concentrations fluctuate, there is an overall increase in concentration over the summer. Na^+ and Cl^- (Fig. 20a and 22, respectively) concentrations in NRC Lake are about two and three times, respectively, the concentrations of the other Delta waters. SO_4^{2-} concentration in NRC Lake becomes similar to the other Delta waters after mid-August.

TDFe and TDMn concentrations (Fig. 23b and 24, respectively) in NRC Lake are similar to the other delta waters. The TDMn concentration in NRC Lake on June 12 is the highest TDMn concentration observed in this study.

Early in June SP, SN, TSC and FSS concentrations (Fig. 8b, 7b, 9b and 4b, respectively) in NRC Lake are more like those in the Delta lakes than in the Delta channels; the concentrations observed in the channels are much higher than in the lakes. Although chlorophyll-a concentrations in all the Delta lakes and channels are similar (Fig. 5b and 6b) the temporal pattern of chlorophyll-a concentration in NRC Lake is more like that of the Delta lakes. All the Delta lakes show a chlorophyll-a maximum in June, mid-June for NRC Lake and late June for the other lakes, while the channels show only a slight maximum at that time and achieve maximum chlorophyll-a concentrations at the end of the summer.

SIC

Only a few SIC analyses were done on the Delta lakes and Big Lake Channel. However a detailed profile in time is available for East Channel, (Fig. 12) at which station the SIC concentration ranges from 36 to 507 $\mu mole \cdot L^{-1}$. No similar TIC profile of East Channel is available to make a detailed SIC:TIC comparison but the maximum observed SIC (East Channel 507 $\mu mole \cdot L^{-1}$ on August 18) represents 26% of Inuvik TIC (1922 $\mu mole \cdot L^{-1}$) and 25% of FWI DIC (2020 $\mu mole \cdot L^{-1}$) on that day for that station.

Kukjuktuk lakes

The chemistry of the Kukjuktuk lakes 10 and 18, is similar in 1985 and 1986. In Kukjuktuk Lake 10 the suspended fractions, FSS, FWI chlorophyll-a, Inuvik chlorophyll-a, SN, SP and TSC, show a very strong single maximum in late August (Fig. 4a, 5a, 6a, 7a, 8a and 9a) 1986, while in 1985 most suspended variables showed two maxima, both much weaker than the maximum observed in 1986. In 1985 the stronger maximum was observed in mid-July (Anema et al. 1990) and the weaker one in late August. Concentrations of major ions in Kukjuktuk Lake 10 decreased significantly in 1986. Temporal concentration patterns of other variables in 1986 in both lakes are not much different from those in 1985 and differences occur only in Kukjuktuk Lake 18 (DOC, TIC, TDP, Cl^-, SO_4^{2-}, FWI pH and FWI specific conductance).

Noell Lake

The water quality and chemistry variables studied in Noell Lake change little through the season. Chemically this lake is very similar to the Kukjuktuk lakes studied although most variables have a mean concentration less than that of both Kukjuktuk Lake 10 and Kukjuktuk Lake 18. Sulphate concentration, which is higher in Noell Lake than in either Kukjuktuk Lake 10 or Kukjuktuk lake 18, is the exception.

Comparison of variables

Specific conductance

Figure 31 compares the FWI and *in situ* specific conductances. Kukjuktuk Lake 10, Kukjuktuk Lake 18 and Noell Lake FWI specific conductances are higher than the *in situ* values while, for most of the summer, the reverse is true for the Delta lakes and channels. The exceptions are a block of data that includes all the measurements of June 12 and June 16 on all the Delta lakes and channels except NRC Lake. A similar observation was made in the 1985 data (Anema et al. 1990) for the East and Big Lake channels. At the end of the summer, September 7, the FWI specific conductances of New Lake, Big Lake Channel, South Lake and South Lake Bay are also greater than the *in situ* observations.

pH

Figure 32 compares the FWI pH and *in situ* pH. All but three of the Kukjuktuk lakes and Noell Lake data points have an *in situ* pH greater than the FWI pH. The exceptions are early and late in the season. In half (31) of the Mackenzie Delta data pairs the *in situ* pH is less than the FWI pH and in half (30) the *in situ* pH is greater than the FWI pH. Members of the latter group tend to occur at the beginning and/or at the end of the summer either singly or in groups. The extremely high FWI pH of NRC Lake may be due to an underequilibration with CO_2.

Chlorophyll-a

As in 1985 the FWI chlorophyll-a is less than the Inuvik values (Fig. 33). At very low concentrations, $< 1.5\ \mu g \cdot L^{-1}$, the two analyses appear to be equal. Regression analysis gives a mean ratio of 0.815 between the two analyses, a somewhat larger ratio than was observed in 1985 (0.629 Anema et al. 1990). One datum, Big Lake Channel August 18, was not included in this calculation because it appears to be in error by a factor of 10. The three high Kukjuktuk Lake 10 data points exert an undue influence on this comparison. When these are excluded from the regression, the ratio of FWI chlorophyll-a to Inuvik chlorophyll-a becomes 0.646, similar to the ratio obtained in 1985.

FWI DIC and Inuvik TIC

FWI DIC and Inuvik TIC analyses are compared in Fig. 34. Only Kukjuktuk Lake 10 and Noell Lake are distributed evenly about the 1:1 line. The FWI DIC data for the Delta and Kukjuktuk Lake 18 are all higher than the TIC data obtained in the Inuvik laboratory. The reason for this is not certain.

SIC and FSS

The patterns of SIC and FSS concentration in the East Channel are similar (compare Fig. 4e and 12). SIC is plotted vs FSS in Fig. 35a. The slope of the correlation line is $0.806\ \mu mol \cdot mg^{-1}$. The correlation coefficient between these two variables in the East Channel is 0.92, for 51 data pairs. The observed ratios of SIC:FSS remain between 0.6 and 1.5 $\mu mol \cdot mg^{-1}$ except for the data of August 5 and September 1 on which dates the ratios are 0.2 and 1.9 $\mu mol \cdot mg^{-1}$, respectively. The ratios are plotted vs time in Fig. 35b.

FSS and unfiltered A_{543}

Figure 36 is a plot of FSS vs unfiltered A_{543}. While there is a correlation between these two variables it appears to be nonlinear and there are a large number of outlying data points. There is no obvious pattern to these outliers other than that of the eight outliers with $A_{543} < 5$ or FSS $< 100\,mg \cdot L^{-1}$, seven are Skidoo Lake Channels samples and one is an East Channel sample. Variation may be due to lack of mixing when filtering in a way similar to inconsistencies observed in the 1985 TIC data (Anema et al. 1990). Since these "absorbances" are not due to the absorbing properties of the suspended sediment but rather to the scattering and light blocking properties of

the suspended sediment, linearity is not necessarily expected in this comparison. Differences in the colour, and hence the absorbing properties of the water, may also cause nonlinearities.

Consistency of the data

Electroneutrality of the samples requires that

$$[Na^+] + [K^+] + 2[Mg^{2+}] + 2[Ca^{2+}] - [Cl^-] - 2[SO_4^{2-}] = [HCO_3^-] + 2[CO_3^{2-}] - [H^+] + [OH^-]$$

Each side of this equation defines the dissolved alkalinity. Further contributions to the total alkalinity come from the suspended fraction, e.g. $CaCO_3$. The left side of the above equation is readily calculated from the major ion concentrations data (Tables 3 and 4). The right side of the equation can be calculated from the FWI pH and FWI DIC or the Inuvik DIC (=TIC−SIC) and in situ pH as below.

$$\text{Dissolved alkalinity} = [DIC]\cdot(\alpha_1 + 2\alpha_2) + [OH^-] - [H^+]$$

In this equation α_1 and α_2 are as defined by Stumm and Morgan (1970). If instead of [DIC], [TIC] is used in the above equation a minimum value of the total alkalinity will be calculated. The total alkalinity calculated in this manner will always underestimate the correct value by approximately half the suspended carbonate concentration as measured in equivalents per liter; the exact error varies with the pH, which governs the distribution of carbonate and bicarbonate ions, because the suspended fraction will treated as if it were dissolved and distributed between carbonate and bicarbonate forms. At the pH of our samples most of the dissolved inorganic carbon is in the bicarbonate form while the suspended fraction is entirely in the carbonate form. The total alkalinity is also available as a measured quantity (FWI TA).

The alkalinities as calculated above are presented in Tables 10 and 11 and Fig. 37 and 38. These plots compare the FWI DA (dissolved alkalinity) (Fig. 37a and 37b), the Inuvik TA (total alkalinity) (Fig. 38a and 38b) and the measured FWI TA (Fig. 37d) with the alkalinity calculated from the major ion concentrations.

The comparison of the measured FWI TA with the major ion alkalinity (Fig. 37d and 37e) shows that with the exception of the East Channel and the Big Lake Channel data the points fall in a narrow band just above and below the 1:1 line indicating that there is general agreement between the two data sets. The channel samples are known to have high concentrations of suspended inorganic carbon and are therefore expected to have a higher total alkalinity than the dissolved alkalinity calculated from the major ions concentrations.

The comparison of the the dissolved alkalinity calculated from the DIC and FWI pH with the dissolved alkalinity calculated from the major ions concentrations (Tables 10 and 11) shows three groupings of data points (Fig. 37a and 37c). Group one contains all the data from June 30 to July 2, inclusive, and from August 25 to September 7, inclusive. For these data all alkalinities, except two of three of NRC Lake, calculated from the major ions are greater than the alkalinities calculated from the DIC and the data fall below the 1:1 line in Fig. 37c. In this group the mean difference, DA (from major ions) − DA (from DIC), has a mean value of 85.8 $\mu eq\cdot L^{-1}$ (SD = 43.7 $\mu eq\cdot L^{-1}$, n = 29) not including NRC Lake data of June 30 and August 28. Group two consists of the data from July 14 to August 18, inclusive. For these data the reverse is true; all the alkalinities, except three of NRC Lake, calculated from the major ions are less than the alkalinity calculated from the DIC and these data fall in a band above the 1:1 line in Fig. 37c. In this group the mean difference, DA (from major ions) − DA (from DIC), has a mean value of −202.1 $\mu eq\cdot L^{-1}$ (SD = 115.4 $\mu eq\cdot L^{-1}$, n = 27) excluding NRC Lake. Group three consists of the data prior to June 30 (DIC data for June 23 only). These data are a mix and fall both above and below the 1:1 line in Fig. 37c. In this group the mean difference, DA (from major ions) − DA (from DIC), has a mean value

of 17.1 $\mu eq \cdot L^{-1}$ (SD = 60.8 $\mu eq \cdot L^{-1}$, n = 6) not including NRC Lake which has a difference of -311 $\mu eq \cdot L^{-1}$. All exceptions in all three groups are NRC Lake data and are marked as () in Fig. 37c.

Samples that are undersaturated with CO_2 when measuring FWI pH and DIC will yield pH values that are too high and DIC values that are too low. Depending upon the relative degree of undersaturation of the two subsamples the alkalinities calculated from them will be; a: too low, from a DIC that is too low (group one) b: too high, from a pH that is too high (group two), or c: correct due to a fortuitous cancellation of errors (possibly the NRC Lake samples of June 30 and July 17). The effects of undersaturation are expected to be most apparent on the NRC Lake samples because they are initially farthest from equilibrium. Both effects may operate in one sample because the measurements are done on different subsamples.

Group three is probably the best comparison of the two calculated DA values with a small difference and a low variance although it contains only six samples. Group one has a smaller variance and larger sample sample size but larger mean difference. A comparison of Fig. 37c with Fig. 37d indicates that the DA of groups one and three have a distribution similar to that of the total alkalinity.

Figures 38a and 38b compare the total alkalinity calculated from the Inuvik TIC and the *in situ* pH with the dissolved alkalinity calculated from the major ions concentrations. Virtually all these data are below the 1:1 line and they are distributed over a much wider range than in the FWI TA comparison (Fig. 37d). This also applies to the Delta channels data although they are closer to the 1:1 line than the other data. The Inuvik TIC data, while internally consistent, are systematically low when compared to the major ions data and the FWI TA data.

Conclusions

The chemistry of both the Mackenzie Delta and Kukjuktuk lakes in 1986 is generally similar to that observed in 1985. The significant differences are in the suspended fractions, most of which increased from 1985 to 1986 in both regions, and in the major ion concentrations of Kukjuktuk Lake 10. In the Delta the increase in FSS from 1985 to 1986 occurs with a decrease, or little or no change, in chlorophyll-a over that time period while in the Kukjuktuk lakes the increase in FSS occurs with an increase in chlorophyll-a from 1985 to 1986. This year to year variation agrees with the within year correlations in the 1985 data set (Anema et al. 1990). Although the concentrations of the suspended fractions in the Delta are higher in 1986, the concentration patterns are similar to the 1985 patterns. This is not so in Kukjuktuk Lake 10 where the concentrations as well as the concentration patterns of the suspended fractions have changed. Since FSS and chlorophyll-a are positively and highly correlated (R = 0.873 for 26 data points, (Anema et al. 1990) the increased FSS, chlorophyll-a, SN, SP and TSC in Kukjuktuk Lake 10 are likely due to an increased algal standing crop. Daily primary algal production in Lake 10 is much higher in 1986 than in 1985 with a temporal pattern similar to that of the suspended fractions (Fee et al. 1988). The major anions and cations in Kukjuktuk Lake 10 decreased significantly compared to the 1985 concentrations while in the other lakes no large changes in these variables are observed between years.

In terms of their chemistries the Mackenzie Delta waters studied can be grouped into channels (East Channel and Big Lake Channel) and lakes (South Lake and South Lake Bay). Skidoo Lake and New Lake, as parts of a system of lakes connected by reversing flow channels, show characteristics of both lakes and channels

The chemistry of the high closure lake, NRC Lake, is significantly different from that of all the other Delta waters.

A comparison of Fig. 4b and 4e shows that the FSS patterns in the channels, as observed

from the triweekly chemistry samples, are oversimplified. FSS concentrations change rapidly and very frequent sampling would be required to obtain a complete picture.

While the changes within a year may be large, the Delta lakes appear to be relatively constant from year to year. This is probably a result of the predictability of the hydrologic regime in the Mackenzie Delta. The hydrologic regime of the Tuktoyaktuk Peninsula lakes is much less predictable than that of the Mackenzie Delta lakes and is much more affected by the local conditions such as snow cover, ice cover and temperature.

Noell Lake water chemistry shows very little variation through the season in the water quality variables measured, a characteristic also observed in the Kukjuktuk Lakes in 1985.

Acknowledgments

The analytical unit of the Freshwater Institute did most of the analyses presented here. Eva Schindler, Kim Hallard and Martha Allan helped with the field work. Mary Ferguson of the National Hydrologic Research Institute (NHRI) provided the Skidoo Lake Channels water samples. Donna Laroque helped to prepare the tables presented in this report. We thank Ray Hesslein for a critical reading of the manuscript. Our thanks to the Department of Indian Affairs and Northern Development (DIAND) for the use of Inuvik Resource Centre, and the staff there for their assistance. This study was funded by the Northern Oil and Gas Action Program (NOGAP); this document is NOGAP report B.3.32. This report was prepared with the LaTeX document preparation system (Lamport 1986).

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Table 1. Table of factors used to convert concentrations from mass units, mg or µg, to micromolar units for the species and units listed.

Species		Convert from	Divide by	Multiply by
SN	TDN	µg/L	14.00	1
SP	TDP	"	30.97	1
SC		"	12.01	1
SRSi		mg/L	28.10	1000
Cl		"	35.45	1000
SO4		"	96.10	1000
Na		"	23.00	1000
K		"	39.10	1000
Ca		"	40.08	1000
Mg		"	24.31	1000
TDFe		"	55.85	1000
Mn		"	54.94	1000

Table 2. Blanks prepared in Inuvik in 1986 for analysis by the analytical unit of the FWI. Units are in µmol·disc^{-1}.

Anal # B-	Blanks obtained with samples anal # B-	Date 1986	Day #	SN	SP	TSC
208	201-207	12-Jun	163	< 0.071	< 0.032	2.50
283	275-282	16-Jun	167	NA	0.035	NA
296	288-295	23-Jun	174	0.143	< 0.032	1.67
311	303-310	30-Jun	181	< 0.071	< 0.032	< 0.83
329	325-327	07-Jul	188	< 0.071	< 0.032	0.83
344	341-343	14-Jul	195	< 0.071	< 0.032	< 0.83
361	353-359	17-Jul	198	< 0.071	< 0.032	< 0.83
377	373-375	29-Jul	210	< 0.071	< 0.032	1.67
427	419-425	05-Aug	217	< 0.071	< 0.032	0.83
438	434-436	13-Aug	225	< 0.071	< 0.032	2.50
449	441-447	18-Aug	230	< 0.071	< 0.032	1.67
459	455-457	25-Aug	237	< 0.071	< 0.032	5.00
471	463-469	28-Aug	240	< 0.071	0.090	0.83
552	548-550	04-Sep	247	< 0.071	< 0.032	< 0.83
565	557-563	07-Sep	250	< 0.071	< 0.032	< 0.83
	Maximum			0.143	0.090	5.00
	Minimum			< 0.071	< 0.032	< 0.83
	Mean			< 0.077	< 0.036	< 1.55
	Standard deviation			0.0191	0.0150	1.172
	n			14	15	14

Table 3. Chemistry and water quality data for Kukjuktuk Lake 10, Kukjuktuk Lake 18 and Noell Lake.

Statn No.	Anal #	B-	LOCATION**	Date 1986	Day #	SN (µmole/L)	TDN (µmole/L)	SP (µmole/L)	TDP (µmole/L)	DOC (µmole/L)	TSC (µmole/L)	SRSi (µmole/L)	Cl (µmole/L)	SO_4 (µmole/L)	FSS mg/L FWI	FSS mg/L Inuvik	Na (µmole/L)	K (µmole/L)	Ca (µmole/L)	Mg (µmole/L)	TDFe (µmole/L)	TDMn (µmole/L)
29	316		Kuk Lake 10	02-Jul	183	5.2	22.1	0.271	0.484	500	42.5	0.93	325	36	2	NA	250	40	190	123	1.43	0.18
37	325		Kuk Lake 10	07-Jul	188	4.9	19.3	0.310	0.452	390	40.8	0.71	353	36	2	NA	241	37	185	117	1.43	0.18
46	341		Kuk Lake 10	14-Jul	195	8.8	20.0	0.477	0.355	410	78.3	1.00	353	42	4	NA	255	39	221	137	0.72	0.18
60	375		Kuk Lake 10	29-Jul	210	12.1	22.1	0.955	0.419	650	115.8	2.17	381	42	9	NA	270	47	259	156	0.72	0.18
79	435		Kuk Lake 10	13-Aug	225	30.4	27.9	1.806	0.452	500	279.2	3.24	381	47	24	NA	291	50	274	165	1.43	< 0.18
90	456		Kuk Lake 10	25-Aug	237	49.4	26.4	2.697	0.516	500	427.5	3.45	395	52	33	NA	323	52	292	178	0.72	0.18
106	549		Kuk Lake 10	04-Sep	247	46.0	32.1	2.039	0.581	510	332.5	1.96	395	52	22	NA	338	51	299	180	1.43	0.18
47	342		Kuk Lake 18	14-Jul	195	6.3	19.3	0.348	0.387	390	50.8	9.43	367	36	3	NA	266	30	466	228	0.72	0.55
59	374		Kuk Lake 18	29-Jul	210	5.9	20.0	0.413	0.355	390	55.0	4.02	339	42	2	NA	248	29	489	228	0.72	0.18
78	434		Kuk Lake 18	13-Aug	225	6.3	21.4	0.374	0.355	410	54.2	3.49	353	47	2	NA	252	28	494	239	< 0.72	< 0.18
91	457		Kuk Lake 18	25-Aug	237	8.0	22.9	0.542	0.323	440	70.8	3.52	339	42	5	NA	276	29	501	237	0.72	0.18
107	550		Kuk Lake 18	04-Sep	247	5.7	22.9	0.335	0.323	440	47.5	3.52	311	42	3	NA	287	29	509	237	0.72	0.18
30	317		Noell Lake	02-Jul	183	2.5	12.9	0.129	0.419	410	25.0	2.60	59	113	1	NA	106	28	175	85	0.72	0.18
NA	327		Noell Lake	07-Jul	188	2.0	12.1	0.090	0.387	340	20.8	3.35	73	111	1	NA	101	28	171	82	0.72	0.55
45	343		Noell Lake	14-Jul	195	2.0	11.4	0.271	0.387	330	23.3	3.17	56	112	1	NA	111	25	172	82	0.72	0.18
58	373		Noell Lake	29-Jul	210	1.9	10.7	0.116	0.290	310	22.5	2.92	54	114	1	NA	101	24	178	85	< 0.72	0.18
80	436		Noell Lake	13-Aug	225	1.7	11.4	0.090	0.290	330	21.7	2.53	56	112	< 1	NA	104	24	177	85	< 0.72	< 0.18
89	455		Noell Lake	25-Aug	237	1.9	11.4	0.129	0.323	380	25.0	2.28	59	116	1	NA	103	26	176	85	< 0.72	< 0.18
105	548		Noell Lake	04-Sep	247	1.6	12.1	0.142	0.258	350	17.5	2.10	56	113	< 1	NA	103	26	176	85	< 0.72	0.18

Statn No.	Anal #	B-	LOCATION**	Date 1986	Day #	FWI DIC (µmol/L)	Inuvik TIC (µmol/L)	Inuvik SIC (µmol/L)	Total Alkal (µeq/L)	Organ Acids (µeq/L)	pH at 25C FWI	pH at 25C In situ	Sp conductance at 25C µS/cm FWI	Sp conductance at 25C µS/cm In situ	Chlorophyll-a µg/L FWI	Chlorophyll-a µg/L Inuvik	In situ temp C	10 cm absorbance at * 455 nm F & C	10 cm absorbance at * 543 nm UF	10 cm absorbance at * 543 nm F	10 cm absorbance at * 543 nm F & C
29	316		Kuk Lake 10	02-Jul	183	490	691	NA	520	25	7.65	7.8	102	72	2.0	3.3	2.4	0.040	0.062	0.030	0.017
37	325		Kuk Lake 10	07-Jul	188	400	480	NA	470	24	7.63	7.6	99	90	0.3	2.2	7.9	0.028	0.047	0.018	0.010
46	341		Kuk Lake 10	14-Jul	195	740	520	NA	560	38	7.24	NA	111	NA	4.0	0.7	NA	0.029	0.081	0.012	0.009
60	375		Kuk Lake 10	29-Jul	210	810	735	NA	666	59	7.96	NA	127	105	5.6	9.2	9.9	0.031	0.139	0.020	0.016
79	435		Kuk Lake 10	13-Aug	225	830	NA	NA	714	55	7.62	7.9	135	122	16.8	25.5	13.1	NA	0.270	NA	NA
90	456		Kuk Lake 10	25-Aug	237	716	785	NA	704	16	7.68	8.2	138	114	44.0	46.5	4.3	0.033	0.308	0.030	0.012
106	549		Kuk Lake 10	04-Sep	247	776	738	4	728	35	7.39	7.9	142	119	30.8	42.1	7.2	0.040	0.465	0.031	0.013
47	342		Kuk Lake 18	14-Jul	195	1510	1195	NA	1270	44	8.08	NA	172	NA	2.5	5.9	NA	0.029	0.080	0.015	0.010
59	374		Kuk Lake 18	29-Jul	210	1480	1303	NA	1234	35	8.17	NA	171	159	2.6	3.2	10.6	0.021	0.117	0.008	0.009
78	434		Kuk Lake 18	13-Aug	225	1410	NA	NA	1284	51	8.11	8.5	176	172	3.0	4.0	13.1	NA	0.022	NA	NA
91	457		Kuk Lake 18	25-Aug	237	1355	1349	NA	1268	8	8.11	8.4	178	162	3.7	4.6	5.6	0.009	0.076	0.008	0.004
107	550		Kuk Lake 18	04-Sep	247	1355	1243	9	1284	15	7.98	8.5	177	162	2.4	3.6	6.9	0.015	0.088	0.010	0.005
30	317		Noell Lake	02-Jul	183	300	342	NA	340	19	7.58	7.6	73	47	0.7	1.1	5.4	0.022	0.028	0.020	0.010
NA	327		Noell Lake	07-Jul	188	290	389	NA	340	16	7.51	NA	72	NA	1.1	2.1	NA	0.010	0.028	0.017	0.008
45	343		Noell Lake	14-Jul	195	400	317	NA	340	16	7.64	NA	71	NA	0.5	3.1	NA	0.013	0.018	0.008	0.003
58	373		Noell Lake	29-Jul	210	390	380	NA	338	9	7.72	NA	70	48	0.5	1.2	11.8	0.015	0.022	0.007	0.005
80	436		Noell Lake	13-Aug	225	400	NA	NA	336	18	7.61	7.9	71	52	1.1	1.1	14.9	NA	0.005	NA	NA
89	455		Noell Lake	25-Aug	237	341	373	NA	330	12	7.25	7.9	70	49	1.0	1.4	9.7	0.012	0.010	0.008	0.001
105	548		Noell Lake	04-Sep	247	345	347	NA	344	19	7.64	7.6	71	45	0.8	1.6	9.1	0.011	NA	0.013	0.004

**Kuk = Kukjuktuk *F = filtered, UF = unfiltered, C = centrifuged

Table 4. Chemistry and water quality data for the lakes and channels in the Mackenzie Delta study area.

Statn No.	Anal #	B-	LOCATION	Date 1986	Day #	SN	TDN	SP	TDP	DOC	TSC	SRSi	Cl	SO_4	FSS mg/L FWI	FSS mg/L Inuvik	Na	K	Ca	Mg	TDFe	TDMn
						µmole/L											µmole/L					
10	277		New Lake	16-Jun	167	4.3	23.6	1.123	0.613	910	43.3	42.35	184	239	30	NA	245	31	773	268	4.30	0.55
17	290		New Lake	23-Jun	174	6.0	22.9	0.490	0.581	750	55.0	46.62	169	250	9	NA	247	30	763	292	3.58	0.18
24	305		New Lake	30-Jun	181	6.0	20.7	0.529	0.581	690	69.2	49.11	169	260	13	NA	243	29	800	301	2.15	0.18
53	355		New Lake	17-Jul	198	6.8	15.0	0.723	0.355	510	85.0	59.43	198	271	28	NA	219	24	800	308	0.72	0.18
67	421		New Lake	05-Aug	217	8.1	13.6	0.968	0.323	510	86.7	66.19	141	281	27	NA	216	21	848	326	< 0.72	< 0.18
83	443		New Lake	18-Aug	230	6.1	14.3	0.606	0.387	480	64.2	61.21	169	302	18	NA	209	21	791	343	0.72	< 0.18
94	465		New Lake	28-Aug	240	7.6	15.0	1.226	0.355	450	84.2	57.30	141	302	35	NA	254	24	903	354	0.72	0.18
NA	537		New Lake	01-Sep	244	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
110	559		New Lake	07-Sep	250	3.7	15.0	0.374	0.323	460	42.5	54.80	141	291	9	NA	251	23	908	352	0.72	0.18
5	205		NRC Lake	12-Jun	163	1.7	25.7	0.759	0.452	740	19.2	61.21	367	312	6	NA	435	39	973	440	2.87	1.09
13	280		NRC Lake	16-Jun	167	NA	25.0	0.516	0.548	750	NA	51.25	381	317	3	NA	443	40	1015	436	3.58	0.55
20	293		NRC Lake	23-Jun	174	9.0	25.7	0.516	0.484	760	72.5	35.94	424	343	2	NA	465	51	1102	486	< 0.72	0.18
27	308		NRC Lake	30-Jun	181	7.1	32.9	0.335	0.484	830	67.5	14.73	452	343	3	NA	491	47	1102	609	0.72	0.18
56	358		NRC Lake	17-Jul	198	3.9	32.1	0.181	0.387	910	50.8	2.17	395	354	3	NA	504	6	454	634	< 0.72	0.18
70	424		NRC Lake	05-Aug	217	3.7	36.4	0.219	0.452	1000	35.0	7.86	424	364	1	NA	470	2	441	626	0.72	< 0.18
86	446		NRC Lake	18-Aug	230	3.5	43.6	0.206	0.548	1130	38.3	5.12	480	364	2	NA	513	7	471	621	0.72	< 0.18
97	468		NRC Lake	28-Aug	240	3.4	42.9	0.348	0.516	990	30.0	1.46	424	323	1	NA	548	10	436	621	0.72	0.18
113	562		NRC Lake	07-Sep	250	4.1	46.4	0.284	0.581	1070	36.7	1.00	424	323	1	NA	552	20	514	626	1.43	0.18
2	202		South Lake	12-Jun	163	2.1	25.0	1.914	0.710	900	25.8	47.33	155	219	60	NA	237	29	741	262	5.02	0.73
9	276		South Lake	16-Jun	167	5.1	25.0	1.290	0.613	910	53.3	41.28	169	224	34	NA	227	30	756	265	4.30	0.55
16	289		South Lake	23-Jun	174	7.8	24.3	0.877	0.581	800	72.5	47.69	169	229	15	NA	224	30	753	284	2.87	0.18
23	304		South Lake	30-Jun	181	9.4	23.6	0.568	0.613	770	84.2	51.96	169	239	10	NA	229	31	800	295	5.02	0.18
52	354		South Lake	17-Jul	198	5.9	20.7	0.323	0.452	700	54.2	55.87	169	260	5	NA	227	29	873	317	0.72	0.18
66	420		South Lake	05-Aug	217	5.2	20.0	0.284	0.355	750	45.0	47.33	169	260	3	NA	230	30	943	334	0.72	< 0.18
82	442		South Lake	18-Aug	230	5.6	20.7	0.426	0.387	710	52.5	41.99	169	271	10	NA	234	28	955	347	0.72	< 0.18
93	464		South Lake	28-Aug	240	6.4	19.3	1.019	0.355	630	65.8	40.93	141	271	24	NA	254	27	943	356	0.72	0.18
109	558		South Lake	07-Sep	250	3.6	20.7	0.297	0.355	610	36.7	38.08	141	260	5	NA	257	27	955	354	0.72	0.18
1	201		South Lake Bay	12-Jun	163	2.4	25.7	1.989	0.710	910	29.2	49.11	155	219	63	NA	233	34	748	271	4.30	0.73
8	275		South Lake Bay	16-Jun	167	5.1	25.0	1.135	0.581	840	55.0	41.28	169	224	33	NA	245	26	741	265	4.30	0.55
15	288		South Lake Bay	23-Jun	174	6.8	25.7	0.606	0.677	770	66.7	47.69	169	229	16	NA	213	31	753	286	4.30	0.18
22	303		South Lake Bay	30-Jun	181	8.1	25.0	0.465	0.581	980	80.0	49.82	169	239	8	NA	226	32	793	286	3.58	0.18
51	353		South Lake Bay	17-Jul	198	5.1	21.4	0.258	0.419	760	46.7	56.94	169	250	3	NA	234	29	883	326	0.72	0.18
65	419		South Lake Bay	05-Aug	217	5.8	21.4	0.335	0.387	730	49.2	49.11	169	271	3	NA	237	32	955	339	0.72	< 0.18
81	441		South Lake Bay	18-Aug	230	5.1	23.6	0.258	0.355	750	55.0	40.93	169	271	6	NA	234	26	883	351	0.72	< 0.18
92	463		South Lake Bay	28-Aug	240	3.4	22.1	0.542	0.355	660	37.5	32.88	141	260	3	NA	250	26	908	350	0.72	0.18
108	557		South Lake Bay	07-Sep	250	3.2	22.9	0.245	0.387	650	31.7	25.84	141	260	2	NA	253	25	843	348	0.72	0.18
3	203		Skidoo Lake	12-Jun	163	2.4	22.9	2.087	0.677	880	33.3	49.82	155	234	76	NA	229	27	766	271	4.30	0.73
11	278		Skidoo Lake	16-Jun	167	3.8	27.9	1.265	0.677	890	42.5	43.77	169	245	41	NA	243	32	808	271	4.30	0.55
18	291		Skidoo Lake	23-Jun	174	5.8	22.1	0.490	0.548	720	56.7	47.69	169	250	10	NA	245	29	788	299	2.15	0.18
25	306		Skidoo Lake	30-Jun	181	6.4	22.1	0.606	0.516	820	75.8	52.31	169	271	18	NA	242	29	810	307	2.15	0.18
54	356		Skidoo Lake	17-Jul	198	8.8	14.3	1.135	0.355	480	111.7	58.36	141	271	42	NA	212	24	800	308	1.43	0.18
68	422		Skidoo Lake	05-Aug	217	8.6	15.0	1.187	0.387	500	95.8	64.41	141	291	32	NA	219	21	835	321	0.72	< 0.18
84	444		Skidoo Lake	18-Aug	230	6.7	15.7	0.787	0.419	520	85.0	58.36	169	312	27	NA	223	22	835	343	0.72	< 0.18
95	466		Skidoo Lake	28-Aug	240	10.2	15.7	1.806	0.355	420	127.5	53.74	141	312	60	NA	254	24	913	361	0.72	0.18
111	560		Skidoo Lake	07-Sep	250	4.4	15.0	0.439	0.355	430	49.2	53.02	141	302	10	NA	257	23	925	356	0.72	0.18

Table 4. Cont. (page 2 of 3).

Statn No.	Anal #	R-	LOCATION	Date 1986	Day #	FWI DIC (µmol/L)	Inuvik TIC (µmol/L)	Inuvik SIC (µmol/L)	Total Alkal (µeq/L)	Organ Acids (µeq/L)	pH at 25C FWI	pH at 25C in situ	Sp conductance at 25C µS/cm FWI	Sp conductance at 25C µS/cm in situ	Chlorophyll-a µg/L FWI	Chlorophyll-a µg/L Inuvik	in situ temp C	10 cm absorbance at * 455 nm F & C	543 nm UF	543 nm F	543 nm F & C
10	277		New Lake	16-Jun	167	NA	1482	NA	1630	44	8.18	7.7	226	220	1.1	1.5	11.5	0.145	1.120	0.121	0.058
17	290		New Lake	23-Jun	174	1760	1583	NA	1660	5	8.17	8.2	232	249	3.7	5.3	17.7	0.118	0.293	0.096	0.063
24	305		New Lake	30-Jun	181	1660	1398	NA	1750	21	8.19	8.2	240	249	4.6	5.8	15.7	0.100	0.370	0.067	0.038
53	355		New Lake	17-Jul	198	2090	1755	NA	1780	< 1	8.28	8.3	251	249	2.9	4.9	17.1	0.061	0.800	0.047	0.024
67	421		New Lake	05-Aug	217	2170	1780	NA	1880	7	8.34	8.3	250	261	4.9	6.2	16.3	0.052	0.600	0.032	0.020
83	443		New Lake	18-Aug	230	2040	1730	NA	1910	< 1	8.33	8.4	259	258	3.6	5.0	13.9	0.033	0.423	0.028	0.009
94	465		New Lake	28-Aug	240	1970	1765	24	1920	46	8.32	8.2	266	271	3.0	4.1	8.3	0.052	1.120	0.060	0.022
NA	537		New Lake	01-Sep	244	NA	1838	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
110	559		New Lake	07-Sep	250	2015	1742	8	1930	58	8.31	8.6	267	265	2.9	4.6	11.5	0.042	0.283	0.023	0.013
5	205		NRC Lake	12-Jun	163	NA	NA	NA	2250	65	8.08	8.0	320	316	3.2	6.0	4.1	0.060	0.188	0.029	0.021
13	280		NRC Lake	16-Jun	167	NA	2214	NA	2330	52	8.20	8.0	325	335	2.3	9.0	13.5	0.056	0.091	0.027	0.019
20	293		NRC Lake	23-Jun	174	2890	2385	NA	2720	< 1	8.34	8.0	364	401	4.3	5.8	19.3	0.031	0.078	0.023	0.020
27	308		NRC Lake	30-Jun	181	2830	2488	NA	2860	17	8.37	8.0	373	405	2.9	3.4	18.4	0.024	0.068	0.012	0.008
56	358		NRC Lake	17-Jul	198	1500	1088	NA	1620	22	8.80	9.6	268	285	1.1	2.0	19.6	0.039	0.100	0.022	0.013
70	424		NRC Lake	05-Aug	217	1060	739	9	1460	39	9.46	10.0	260	294	1.4	2.1	17.4	0.040	0.030	0.027	0.012
86	446		NRC Lake	18-Aug	230	1060	799	NA	1530	23	9.65	10.5	263	286	1.6	2.0	14.7	0.038	0.038	0.018	0.010
97	468		NRC Lake	28-Aug	240	1515	877	22	1480	97	9.47	10.4	262	272	2.4	3.1	8.4	0.065	0.042	0.023	0.028
113	562		NRC Lake	07-Sep	250	1650	1118	7	1600	122	9.13	9.8	274	276	1.1	1.8	13.5	0.063	0.050	0.025	0.020
2	202		South Lake	12-Jun	163	NA	1497	NA	1590	53	8.03	7.9	216	197	0.3	0.9	3.7	0.155	2.210	0.113	0.061
9	276		South Lake	16-Jun	167	NA	1521	NA	1570	42	8.12	8.0	216	210	0.8	0.7	11.5	0.150	1.360	0.110	0.060
16	289		South Lake	23-Jun	174	1760	1617	NA	1660	33	8.16	8.2	225	240	5.0	6.2	18.3	0.131	0.462	0.102	0.062
23	304		South Lake	30-Jun	181	1640	1500	NA	1770	24	8.11	7.6	238	240	9.3	11.8	15.6	0.134	0.275	0.080	0.050
52	354		South Lake	17-Jul	198	2250	1896	NA	1940	15	8.24	8.2	257	267	2.7	4.3	17.6	0.078	0.159	0.039	0.028
66	420		South Lake	05-Aug	217	2460	NA	8	2080	7	8.36	8.2	269	279	2.4	3.1	16.1	0.055	0.058	0.021	0.019
82	442		South Lake	18-Aug	230	2270	1896	NA	2080	28	8.33	8.3	270	272	2.5	3.8	14.4	0.039	0.220	0.020	0.011
93	464		South Lake	28-Aug	240	2045	1880	22	2080	53	8.27	8.2	274	277	2.9	4.4	8.6	0.052	0.740	0.046	0.021
109	558		South Lake	07-Sep	250	2185	1861	7	2080	59	8.25	8.6	276	275	2.4	3.3	11.6	0.045	0.162	0.028	0.013
1	201		South Lake Bay	12-Jun	163	NA	1506	NA	1620	59	7.92	8.1	216	197	0.4	1.2	4.1	0.162	2.250	0.121	0.061
8	275		South Lake Bay	16-Jun	167	NA	1549	NA	1620	54	8.13	7.7	220	214	0.8	1.0	12.8	0.139	1.300	0.100	0.055
15	288		South Lake Bay	23-Jun	174	1660	1607	NA	1660	40	8.07	8.1	224	243	3.3	4.4	18.7	0.130	0.510	0.108	0.080
22	303		South Lake Bay	30-Jun	181	1710	1588	NA	1760	12	8.09	7.8	235	235	5.7	8.2	15.9	0.122	0.251	0.067	0.045
51	353		South Lake Bay	17-Jul	198	2370	1909	NA	1980	21	8.23	8.3	259	272	1.7	2.7	17.8	0.082	0.100	0.089	0.031
65	419		South Lake Bay	05-Aug	217	2440	1976	9	2110	9	8.34	8.7	272	300	3.4	3.6	16.8	0.053	0.059	0.034	0.018
81	441		South Lake Bay	18-Aug	230	2100	1792	NA	2030	49	8.32	9.0	264	269	2.6	4.2	14.2	0.040	0.048	0.015	0.012
92	463		South Lake Bay	28-Aug	240	1995	1725	13	1950	62	8.34	9.0	262	258	2.5	3.0	8.3	0.065	0.065	0.023	0.030
108	557		South Lake Bay	07-Sep	250	1840	1615	6	1820	69	8.43	9.1	253	249	2.5	3.6	12.1	0.045	0.071	0.020	0.016
3	203		Skidoo Lake	12-Jun	163	NA	1525	NA	1670	49	8.08	8.2	223	208	0.4	1.0	6.2	0.145	2.350	0.103	0.054
11	278		Skidoo Lake	16-Jun	167	NA	1476	NA	1680	53	8.20	8.1	228	222	0.8	1.1	12.6	0.150	1.430	0.136	0.060
18	291		Skidoo Lake	23-Jun	174	1720	1619	NA	1730	23	8.16	8.3	238	254	3.7	5.1	17.7	0.118	0.350	0.095	0.060
25	306		Skidoo Lake	30-Jun	181	1810	1438	NA	1760	8	8.16	8.2	244	255	5.1	6.2	15.1	0.090	0.490	0.059	0.031
54	356		Skidoo Lake	17-Jul	198	2080	1723	NA	1820	19	8.30	8.3	244	249	3.5	5.4	16.9	0.060	1.400	0.059	0.023
68	422		Skidoo Lake	05-Aug	217	2150	1805	NA	1870	9	8.35	8.3	251	262	3.9	4.7	16.3	0.058	0.750	0.052	0.024
84	444		Skidoo Lake	18-Aug	230	2100	1680	NA	1920	< 1	8.27	8.3	258	263	4.5	5.7	13.9	0.034	0.760	0.040	0.009
95	466		Skidoo Lake	28-Aug	240	1935	1772	38	1950	58	8.33	8.6	269	270	2.1	3.1	7.9	0.063	2.120	0.062	0.032
111	560		Skidoo Lake	07-Sep	250	1995	1764	9	1960	60	8.31	8.6	273	275	3.1	4.8	11.9	0.030	0.308	0.026	0.010

Table 4. Cont. (page 3 of 3).

Statn No.	Anal # B-	LOCATION	Date 1986	Day #	SN	TDN	SP	TDP	DOC	TSC	SRSi	Cl	SO_4	FSS mg/L FWI	FSS mg/L Inuvik	Na	K	Ca	Mg	TDFe	TDMn
					µmole/L											µmole/L					
6	206	East Channel	12-Jun	163	4.4	22.1	5.549	0.645	830	115.8	50.18	155	239	224	NA	233	30	756	268	4.30	0.55
14	281	East Channel	16-Jun	167	NA	23.6	4.323	0.548	750	NA	43.06	141	229	212	NA	207	30	741	253	2.87	0.55
21	294	East Channel	23-Jun	174	15.0	22.1	3.045	0.516	580	473.3	53.02	141	250	144	NA	221	25	716	281	1.43	0.18
28	309	East Channel	30-Jun	181	22.6	20.7	3.277	0.613	410	> 416.7	55.52	169	260	257	NA	241	24	733	295	1.43	0.18
57	359	East Channel	17-Jul	198	51.7	15.0	9.032	0.355	540	958.3	60.14	113	260	503	NA	211	20	743	300	1.43	0.18
71	425	East Channel	05-Aug	217	18.7	13.6	4.619	0.355	450	415.8	57.30	169	302	188	NA	227	20	825	339	1.43	< 0.18
87	447	East Channel	18-Aug	230	48.0	17.1	6.206	0.452	540	1190.8	57.30	169	364	488	NA	227	20	848	365	1.43	< 0.18
98	469	East Channel	28-Aug	240	17.9	15.7	3.597	0.355	420	413.3	54.80	169	312	NA	NA	274	22	890	370	1.43	0.18
114	563	East Channel	07-Sep	250	4.9	17.9	1.174	0.387	470	117.5	55.87	169	312	NA	NA	295	22	878	365	1.43	0.18
4	204	Big Lake Channel	12-Jun	163	4.9	22.9	5.199	0.613	840	126.7	50.18	155	234	247	NA	217	32	731	268	3.58	0.73
12	279	Big Lake Channel	16-Jun	167	NA	22.1	3.468	0.581	790	NA	43.42	141	229	210	NA	216	26	766	247	3.58	0.55
19	292	Big Lake Channel	23-Jun	174	12.4	20.7	2.594	0.516	570	350.8	53.74	141	250	123	NA	215	26	733	284	1.43	0.18
26	307	Big Lake Channel	30-Jun	181	16.7	17.9	3.535	0.484	400	534.2	55.87	169	271	173	NA	238	23	733	292	0.72	0.18
55	357	Big Lake Channel	17-Jul	198	49.9	15.0	11.333	0.355	570	948.3	60.14	113	260	494	NA	209	20	731	295	0.72	0.18
69	423	Big Lake Channel	05-Aug	217	20.4	13.6	4.890	0.355	390	445.0	57.65	169	302	181	NA	219	20	800	330	0.72	0.18
85	445	Big Lake Channel	18-Aug	230	43.4	14.3	9.634	0.419	460	1041.7	56.94	169	364	413	NA	219	19	860	373	0.72	< 0.18
96	467	Big Lake Channel	28-Aug	240	16.1	15.7	0.726	0.355	470	368.3	54.80	169	323	165	NA	280	22	883	372	0.72	0.18
112	561	Big Lake Channel	07-Sep	250	5.1	17.1	1.187	0.387	450	123.3	55.52	169	312	48	NA	284	22	883	367	1.43	0.18

Statn No.	Anal # B-	LAKE	Date 1986	Day #	FWI DIC	Inuvik TIC	Inuvik SIC	Total Alkal	Organ Acids	pH at 25C FWI	pH at 25C in situ	Sp conductance at 25C uS/cm FWI	Sp conductance at 25C uS/cm in situ	Chlorophyll-a ug/L FWI	Chlorophyll-a ug/L Inuvik	in situ temp C	10 cm absorbance at * 455 nm F & C	10 cm absorbance at * 543 nm UF	10 cm absorbance at * 543 nm F	10 cm absorbance at * 543 nm F & C
					µmol/L			µeq/L													
6	206	East Channel	12-Jun	163	NA	1691	258	1980	47	8.16	8.2	221	206	0.5	1.3	7.9	0.122	3.850	0.084	0.045
14	281	East Channel	16-Jun	167	NA	1515	311	1930	45	8.22	7.6	216	205	0.9	0.6	9.6	0.112	4.580	0.097	0.044
21	294	East Channel	23-Jun	174	1650	1570	190	1840	9	8.17	8.0	219	231	1.3	1.7	14.1	0.090	2.120	0.094	0.039
28	309	East Channel	30-Jun	181	1610	1588	>163	1940	27	8.19	8.0	230	238	1.3	1.2	15.6	0.050	2.120	0.060	0.018
57	359	East Channel	17-Jul	198	1850	1745	367	1930	18	8.31	8.1	229	233	0.6	0.7	16.8	0.073	10.300	0.102	0.028
71	425	East Channel	05-Aug	217	2080	1799	43	1940	13	8.35	8.1	248	261	1.1	0.9	16.2	0.062	3.390	0.056	0.023
87	447	East Channel	18-Aug	230	2020	1922	507	2310	< 1	8.26	7.9	266	275	1.2	0.6	15.2	0.041	6.800	0.064	0.010
98	469	East Channel	28-Aug	240	1955	1889	215	2080	47	8.34	8.1	269	281	1.3	1.6	10.4	0.048	3.900	0.055	0.018
114	563	East Channel	07-Sep	250	1930	1745	NA	1920	67	8.26	8.2	270	273	1.6	2.6	12.3	0.058	1.080	0.045	0.022
4	204	Big Lake Channel	12-Jun	163	NA	1715	NA	1890	48	8.11	8.3	219	205	0.5	1.5	7.5	0.127	4.050	0.096	0.047
12	279	Big Lake Channel	16-Jun	167	NA	1644	NA	1890	39	8.21	8.3	216	204	0.9	0.8	9.6	0.138	2.890	0.120	0.051
19	292	Big Lake Channel	23-Jun	174	1560	1563	NA	1820	19	8.15	8.3	221	232	1.4	1.6	14.1	0.079	2.000	0.094	0.040
26	307	Big Lake Channel	30-Jun	181	1500	1451	NA	1800	27	8.28	8.2	230	239	1.2	1.4	15.4	0.050	2.500	0.054	0.016
55	357	Big Lake Channel	17-Jul	198	1840	1674	NA	1970	24	8.28	8.1	234	222	0.5	0.4	16.6	0.085	10.500	0.037	0.032
69	423	Big Lake Channel	05-Aug	217	1990	1735	NA	1970	1	8.32	7.8	249	256	1.1	1.1	16.2	0.049	3.520	0.047	0.020
85	445	Big Lake Channel	18-Aug	230	1960	1820	NA	2300	< 1	8.25	8.1	265	271	15.1	0.8	15.1	0.042	6.400	0.052	0.012
96	467	Big Lake Channel	28-Aug	240	1940	1870	204	2070	54	8.26	8.1	270	279	1.1	1.6	10.3	0.045	3.800	0.060	0.015
112	561	Big Lake Channel	07-Sep	250	1915	1757	60	1920	66	8.22	8.3	271	270	1.8	2.5	12.2	0.056	1.110	0.048	0.020

* UF = unfiltered, F = filtered, C = centrifuged

Table 5. Suspended sediment data for East Channel, Skidoo Lake Channel West and Skidoo Lake Channel East.

Statn No.	Anal # B-	LOCATION	Date 1986	Day #	FSS mg/L FWI	FSS mg/L Inuvik	Inuvik SIC umol/L	In situ temp C	10 cm absorbance at * 455 nm F & C	543 nm UF	543 nm F	543 nm F & C
6	206	East Channel	12-Jun	163	224	NA	258	7.9	0.122	3.850	0.084	0.045
7	209	East Channel	13-Jun	164	134	NA	156	NA	NA	NA	NA	NA
NA	210	East Channel	14-Jun	165	NA	NA	NA	NA	NA	2.790	NA	NA
NA	273	East Channel	14-Jun	165	104	NA	113	NA	NA	2.580	NA	NA
NA	274	East Channel	15-Jun	166	146	NA	208	NA	NA	2.800	NA	NA
14	281	East Channel	16-Jun	167	212	NA	311	9.6	0.112	4.580	0.097	0.044
NA	284	East Channel	17-Jun	168	88	NA	104	NA	NA	1.910	0.070	NA
NA	285	East Channel	18-Jun	169	97	NA	121	9.5	NA	2.080	0.075	NA
NA	286	East Channel	19-Jun	170	81	NA	86	8.5	NA	1.800	0.078	NA
NA	330	East Channel	20-Jun	171	64	NA	76	10	NA	NA	NA	NA
21	294	East Channel	23-Jun	174	144	NA	190	14.1	0.090	2.120	0.094	0.039
NA	297	East Channel	24-Jun	175	83	NA	98	14	NA	1.580	0.060	NA
NA	298	East Channel	25-Jun	176	60	NA	68	14	NA	1.300	0.048	NA
NA	299	East Channel	26-Jun	177	61	NA	66	13.5	NA	1.470	0.060	NA
NA	300	East Channel	27-Jun	178	48	NA	58	14	NA	1.230	0.062	NA
28	309	East Channel	30-Jun	181	257	NA	>>163	15.6	0.050	2.120	0.060	0.018
NA	313	East Channel	01-Jul	182	NA	NA	NA	14.5	NA	2.240	0.030	NA
NA	318	East Channel	02-Jul	183	224	NA	221	15	NA	4.760	0.038	NA
NA	321	East Channel	03-Jul	184	88	NA	83	14	NA	2.360	0.039	NA
NA	322	East Channel	07-Jul	188	320	NA	263	18	NA	8.600	0.058	NA
NA	331	East Channel	08-Jul	189	183	NA	216	16.8	NA	4.600	0.061	NA
NA	332	East Channel	09-Jul	190	103	NA	133	17	NA	2.590	0.062	NA
NA	335	East Channel	10-Jul	191	100	NA	147	17	NA	2.300	0.065	NA
NA	336	East Channel	11-Jul	192	112	NA	169	15	NA	2.500	0.055	NA
NA	345	East Channel	14-Jul	195	238	NA	> 154	18	NA	5.320	0.053	NA
NA	348	East Channel	15-Jul	196	163	NA	NA	18.5	NA	3.800	0.055	NA
NA	352	East Channel	16-Jul	197	192	NA	225	17.5	NA	4.400	0.059	NA
57	359	East Channel	17-Jul	198	503	NA	367	16.8	0.073	10.300	0.102	0.028
NA	362	East Channel	18-Jul	199	239	NA	183	17	NA	4.700	0.059	NA
NA	365	East Channel	21-Jul	202	109	NA	93	16.5	NA	2.540	0.039	NA
NA	368	East Channel	22-Jul	203	97	NA	88	NA	NA	2.090	0.033	NA
NA	473	East Channel	23-Jul	204	NA	90	NA	16	NA	1.880	0.058	NA
NA	479	East Channel	26-Jul	207	NA	70	NA	NA	NA	1.450	0.068	NA
NA	485	East Channel	29-Jul	210	NA	128	NA	15.5	NA	2.590	0.070	NA
NA	488	East Channel	31-Jul	212	NA	324	NA	15.6	NA	8.190	0.068	NA
NA	381	East Channel	01-Aug	213	306	NA	235	16	NA	8.400	NA	NA
71	425	East Channel	05-Aug	217	188	NA	43	16.2	0.062	3.390	0.056	0.023
NA	489	East Channel	06-Aug	218	NA	75	NA	16.2	NA	1.870	0.080	NA
NA	492	East Channel	07-Aug	219	NA	90	NA	NA	NA	2.180	0.105	NA
NA	493	East Channel	08-Aug	220	NA	64	NA	NA	NA	1.060	0.053	NA
NA	496	East Channel	11-Aug	223	NA	101	NA	17.8	NA	1.910	0.027	NA
NA	499	East Channel	12-Aug	224	NA	117	NA	18.7	NA	2.330	0.038	NA
NA	500	East Channel	13-Aug	225	NA	104	NA	17.5	NA	1.930	0.039	NA
NA	503	East Channel	14-Aug	226	NA	152	NA	16.3	NA	2.720	0.039	NA
NA	504	East Channel	15-Aug	227	NA	412	291	16	NA	7.400	0.031	NA
NA	507	East Channel	16-Aug	228	NA	265	281	18	NA	5.120	0.033	NA
87	447	East Channel	18-Aug	230	488	NA	507	15.2	0.041	6.800	0.064	0.010
NA	515	East Channel	19-Aug	231	NA	527	498	16.5	NA	8.190	0.078	NA
NA	516	East Channel	20-Aug	232	NA	307	295	14	NA	5.710	0.075	NA
NA	519	East Channel	24-Aug	236	NA	275	219	10	NA	5.780	0.100	NA
NA	520	East Channel	25-Aug	237	NA	212	173	10	NA	4.740	0.106	NA
NA	523	East Channel	26-Aug	238	NA	193	180	10	NA	4.000	0.052	NA
NA	524	East Channel	27-Aug	239	NA	93	82	10	0.078	2.400	0.056	0.030
98	469	East Channel	28-Aug	240	NA	NA	215	10.4	0.048	3.900	0.055	0.018
NA	472	East Channel	29-Aug	241	NA	75	82	8	0.067	1.930	0.060	0.023
NA	527	East Channel	30-Aug	242	NA	66	78	7	NA	1.350	0.040	NA
NA	528	East Channel	31-Aug	243	NA	69	75	9	0.060	1.720	0.035	0.024
NA	538	East Channel	01-Sep	244	NA	83	154	10.4	0.065	1.800	0.045	0.023
NA	545	East Channel	02-Sep	245	NA	61	69	10.5	0.060	1.300	0.040	0.020

Table 5. Cont. (page 2 of 2).

Statn No.	Anal #	B-	LOCATION	Date 1986	Day #	FSS mg/L FWI	FSS mg/L Inuvik	Inuvik SIC µmol/L	In situ temp C	10 cm absorbance at * 455 nm F & C	543 nm UF	543 nm F	543 nm F & C
NA	546		East Channel	03-Sep	246	NA	48	51	11	0.062	1.200	0.072	0.020
NA	547		East Channel	04-Sep	247	NA	49	49	10	0.056	1.350	0.055	0.020
NA	555		East Channel	05-Sep	248	64	NA	77	10.5	0.053	1.250	0.040	0.022
NA	556		East Channel	06-Sep	249	41	NA	42	10.5	0.052	1.050	0.033	0.022
114	563		East Channel	07-Sep	250	NA	NA	NA	12.3	0.058	1.080	0.045	0.022
NA	566		East Channel	08-Sep	251	28	NA	36	11	0.058	0.700	0.038	0.022
NA	567		East Channel	09-Sep	252	36	NA	42	11	0.052	0.850	0.035	0.022
NA	568		East Channel	10-Sep	253	46	NA	43	11	NA	1.200	0.045	NA
NA	314		Skidoo L Ch East	01-Jul	182	71	NA	NA	NA	NA	2.730	0.032	NA
NA	319		Skidoo L Ch East	02-Jul	183	187	NA	NA	NA	NA	5.300	0.030	NA
NA	323		Skidoo L Ch East	07-Jul	188	411	NA	NA	NA	NA	10.000	0.066	NA
NA	333		Skidoo L Ch East	09-Jul	190	121	NA	NA	NA	NA	2.350	0.052	NA
NA	338		Skidoo L Ch East	11-Jul	192	128	NA	NA	NA	NA	2.660	0.069	NA
NA	346		Skidoo L Ch East	14-Jul	195	336	NA	NA	NA	NA	6.620	0.060	NA
NA	349		Skidoo L Ch East	15-Jul	196	234	NA	NA	NA	NA	4.400	0.049	NA
NA	363		Skidoo L Ch East	18-Jul	199	NA	NA	NA	NA	NA	10.000	0.032	NA
NA	366		Skidoo L Ch East	21-Jul	202	156	NA	NA	NA	NA	3.090	0.030	NA
NA	369		Skidoo L Ch East	22-Jul	203	140	NA	NA	NA	NA	2.180	0.027	NA
NA	474		Skidoo L Ch East	23-Jul	204	NA	120	NA	NA	NA	2.100	0.061	NA
NA	483		Skidoo L Ch East	28-Jul	209	NA	157	NA	NA	NA	2.610	0.080	NA
NA	486		Skidoo L Ch East	30-Jul	211	NA	480	NA	NA	NA	7.180	0.068	NA
NA	417		Skidoo L Ch East	01-Aug	213	405	NA	NA	NA	NA	10.800	NA	NA
NA	490		Skidoo L Ch East	06-Aug	218	NA	243	NA	NA	NA	2.120	0.070	NA
NA	494		Skidoo L Ch East	08-Aug	220	NA	431	NA	NA	NA	4.200	0.023	NA
NA	497		Skidoo L Ch East	11-Aug	223	NA	104	NA	NA	NA	1.600	0.032	NA
NA	501		Skidoo L Ch East	13-Aug	225	NA	134	NA	NA	NA	2.170	0.044	NA
NA	505		Skidoo L Ch East	15-Aug	227	NA	474	NA	NA	NA	8.000	0.071	NA
NA	509		Skidoo L Ch East	18-Aug	230	NA	487	NA	NA	NA	7.800	0.061	NA
NA	517		Skidoo L Ch East	20-Aug	232	NA	275	NA	NA	NA	4.900	0.077	NA
NA	521		Skidoo L Ch East	25-Aug	237	NA	291	NA	NA	NA	5.320	0.091	NA
NA	526		Skidoo L Ch East	27-Aug	239	NA	112	NA	NA	0.052	2.390	0.042	0.020
NA	544		Skidoo L Ch East	01-Sep	244	NA	40	NA	NA	0.045	5.450	0.032	0.018
NA	315		Skidoo L Ch West	01-Jul	182	185	NA	NA	NA	NA	1.610	0.039	NA
NA	320		Skidoo L Ch West	02-Jul	183	90	NA	NA	NA	NA	2.400	0.040	NA
NA	324		Skidoo L Ch West	07-Jul	188	23	NA	NA	NA	NA	8.300	0.058	NA
NA	334		Skidoo L Ch West	09-Jul	190	65	NA	NA	NA	NA	2.010	0.070	NA
NA	339		Skidoo L Ch West	11-Jul	192	90	NA	NA	NA	NA	2.150	0.070	NA
NA	347		Skidoo L Ch West	14-Jul	195	109	NA	NA	NA	NA	2.540	0.061	NA
NA	350		Skidoo L Ch West	15-Jul	196	121	NA	NA	NA	NA	3.060	0.053	NA
NA	364		Skidoo L Ch West	18-Jul	199	499	NA	NA	NA	NA	2.900	NA	NA
NA	367		Skidoo L Ch West	21-Jul	202	72	NA	NA	NA	NA	2.400	0.031	NA
NA	370		Skidoo L Ch West	22-Jul	203	72	NA	NA	NA	NA	2.000	0.043	NA
NA	475		Skidoo L Ch West	23-Jul	204	NA	61	NA	NA	NA	1.500	0.079	NA
NA	484		Skidoo L Ch West	28-Jul	209	NA	72	NA	NA	NA	1.650	0.069	NA
NA	487		Skidoo L Ch West	30-Jul	211	NA	120	NA	NA	NA	3.010	0.083	NA
NA	418		Skidoo L Ch West	01-Aug	213	229	NA	NA	NA	NA	7.800	NA	NA
NA	491		Skidoo L Ch West	06-Aug	218	NA	42	NA	NA	NA	1.240	0.085	NA
NA	495		Skidoo L Ch West	08-Aug	220	NA	57	NA	NA	NA	1.020	0.053	NA
NA	498		Skidoo L Ch West	11-Aug	223	NA	147	NA	NA	NA	2.290	0.030	NA
NA	502		Skidoo L Ch West	13-Aug	225	NA	65	NA	NA	NA	1.150	0.060	NA
NA	506		Skidoo L Ch West	15-Aug	227	NA	174	NA	NA	NA	4.090	0.043	NA
NA	510		Skidoo L Ch West	18-Aug	230	NA	475	NA	NA	NA	7.000	0.032	NA
NA	518		Skidoo L Ch West	20-Aug	232	NA	219	NA	NA	NA	4.700	0.093	NA
NA	522		Skidoo L Ch West	25-Aug	237	NA	155	NA	NA	NA	3.680	0.086	NA
NA	525		Skidoo L Ch West	27-Aug	239	NA	73	NA	NA	0.050	1.340	0.048	0.018
NA	543		Skidoo L Ch West	01-Sep	244	NA	341	NA	NA	0.048	1.100	0.032	0.015

* UF = unfiltered, F = filtered, C = centrifuged

Table 6. Maximum, minimum, mean, sample standard deviation and sample size for the water chemistry and water quality variables for Kukjuktuk Lake 10, Kukjuktuk Lake 18 and Noell Lake data in Table 3.

LOCATION**	STATISTIC	SN	TDN	SP	TDP	DOC	TSC	SRSi	Cl	SO_4	FSS mg/L		Na	K	Ca	Mg	TDFe	TDMn
		µmole/L									FWI	Inuvik	µmole/L					
Kuk Lake 10	Maximum	49.36	32.14	2.697	0.581	650	427.5	3.45	395	52	33	NA	338	52	299	180	1.43	0.18
	Minimum	4.86	19.29	0.271	0.355	390	40.8	0.71	325	36	2	NA	241	37	185	117	0.72	0.18
	Mean	22.39	24.29	1.222	0.465	494	188.1	1.92	369	44	14	NA	281	45	246	151	1.13	0.18
	Standard deviation	19.336	4.684	0.9614	0.0718	84.2	156.32	1.114	26.3	6.6	12.5	NA	37.7	6.5	47.3	25.7	0.383	0.000
	n	7	7	7	7	7	7	7	7	7	7	NA	7	7	7	7	7	7
Kuk Lake 18	Maximum	8.00	22.86	0.542	0.387	440	70.8	9.43	367	47	5	NA	287	30	509	239	0.72	0.55
	Minimum	5.71	19.29	0.335	0.323	390	47.5	3.49	311	36	2	NA	248	28	466	228	0.72	0.18
	Mean	6.44	21.29	0.403	0.348	414	55.7	4.80	342	42	3	NA	266	29	492	234	0.72	0.26
	Standard deviation	0.904	1.629	0.0833	0.0270	25.1	8.98	2.600	20.9	3.7	1.2	NA	16.4	0.7	16.1	5.4	0.000	0.163
	n	5	5	5	5	5	5	5	5	5	5	NA	5	5	5	5	5	5
Noell Lake	Maximum	2.50	12.86	0.271	0.419	410	25.0	3.35	73	116	1	NA	111	28	178	85	0.72	0.55
	Minimum	1.64	10.71	0.090	0.258	310	17.5	2.10	54	111	1	NA	101	24	171	82	0.72	0.18
	Mean	1.94	11.73	0.138	0.336	350	22.3	2.70	59	113	1	NA	104	26	175	84	0.72	0.23
	Standard deviation	0.281	0.697	0.0618	0.0614	34.2	2.62	0.459	6.5	1.4	0.0	NA	3.4	2.0	2.6	1.2	0.000	0.138
	n	7	7	7	7	7	7	7	7	7	7	NA	7	7	7	7	7	7
	Maximum	49.36	32.14	2.697	0.581	650	427.5	9.43	395	116	33	NA	338	52	509	239	1.43	0.55
	Minimum	1.64	10.71	0.090	0.258	310	17.5	0.71	54	36	1	NA	101	24	171	82	0.72	0.18
	Mean	10.66	18.87	0.607	0.387	420	92.1	2.97	248	69	6	NA	212	34	284	148	0.87	0.22
	Standard deviation	14.589	6.395	0.7451	0.0833	83.4	118.38	1.835	149.5	35.1	9.4	NA	88.0	9.8	134.2	62.2	0.300	0.115
	n	19	19	19	19	19	19	19	19	19	19	NA	19	19	19	19	19	19

Table 6. Cont. (page 2 of 2).

LOCATION**	STATISTIC	FWI DIC	Inuvik TIC	Inuvik SIC	Total Alkal	Organ Acids	pH at 25C		Sp conductance at 25C µS/cm		Chlorophyll-a µg/L		in situ temp C	10 cm absorbance at * 455 nm	543 nm		
		µmol/L			µeq/L		FWI	in situ	FWI	in situ	FWI	Inuvik		F & C	U	UF	F & C
Kuk Lake 10	Maximum	830	785	4	728	59	7.96	8.2	142	122	44.0	46.5	13.1	0.040	0.465	0.031	0.017
	Minimum	400	480	4	470	16	7.24	7.6	99	72	0.3	0.7	2.4	0.028	0.047	0.012	0.009
	Mean	680	658	4	623	36	7.60	7.9	122	104	14.8	18.5	7.5	0.034	0.196	0.024	0.013
	Standard deviation	167	126.8	NA	104.6	16.1	0.229	0.22	17.8	19.3	16.77	19.56	3.84	0.0053	0.1565	0.0079	0.0032
	n	7	6	1	7	7	7	5	7	6	7	7	6	6	7	6	6
Kuk Lake 18	Maximum	1510	1349	9	1284	51	8.17	8.5	178	172	3.7	5.9	13.1	0.029	0.117	0.015	0.010
	Minimum	1335	1195	9	1234	8	7.98	7.7	171	62	2.4	3.2	5.6	0.009	0.022	0.008	0.004
	Mean	1418	1272	9	1268	31	8.09	8.3	175	143	2.8	4.3	9.2	0.019	0.077	0.010	0.007
	Standard deviation	76.2	67.5	NA	20.4	18.5	0.070	0.39	3.1	45.8	0.53	1.05	2.99	0.0085	0.0345	0.0033	0.0029
	n	5	4	1	5	5	5	4	5	5	5	5	5	4	5	4	4
Noell Lake	Maximum	400	389	NA	344	19	7.72	7.9	73	52	1.1	3.1	14.9	0.022	0.028	0.020	0.010
	Minimum	290	317	NA	330	9	7.25	7.6	70	45	0.5	1.1	5.4	0.010	0.005	0.007	0.001
	Mean	352	358	NA	338	16	7.56	7.8	71	48	0.8	1.7	10.2	0.014	0.019	0.012	0.005
	Standard deviation	46.1	27.4	NA	4.4	3.8	0.153	0.17	1.1	2.6	0.26	0.74	3.51	0.0044	0.0095	0.0054	0.0033
	n	7	6	0	7	7	7	4	7	5	7	7	5	6	6	6	6
	Maximum	1510	1349	9	1284	59	8.17	8.5	178	172	44.0	46.5	14.9	0.040	0.465	0.031	0.017
	Minimum	290	317	4	330	8	7.24	7.6	70	45	0.3	0.7	2.4	0.009	0.005	0.007	0.001
	Mean	754	699	7	688	27	7.71	8.0	117	99	6.5	8.5	8.9	0.022	0.104	0.016	0.009
	Standard deviation	445.7	376.0	3.5	382.6	15.9	0.282	0.33	43.2	47.0	11.70	13.79	3.46	0.0106	0.1234	0.0084	0.0046
	n	19	16	2	19	19	19	13	19	16	19	19	16	16	18	16	16

** Kuk = Kukjuktuk * UF = unfiltered, F = filtered, C = centrifuged

Table 7. Maximum, minimum, mean, sample standard deviation and sample size for the water chemistry and water quality variables for the Mackenzie Delta lakes and channels data in Table 4.

LAKE		SN	TDN	SP	TDP	DOC	TSC	SRSi	Cl	SO_4	FSS mg/L		Na	K	Ca	Mg	TDFe	TDMn
		µmole/L									FWI	Inuvik	µmole/L					
East Channel	Maximum	51.7	23.6	9.032	0.645	830	1190.8	60.14	169	364		NA	295	30	890	370	4.30	0.55
	Minimum	4.4	13.6	1.174	0.355	410	115.8	43.06	113	229	See	NA	207	20	716	253	1.43	0.18
	Mean	22.9	18.7	4.536	0.470	554	512.7	54.13	155	281	Table	NA	237	24	792	315	1.91	0.26
	Standard deviation	17.86	3.60	2.2382	0.1153	146.7	378.37	5.012	20.0	44.1	8	NA	29.1	3.9	67.9	45.2	1.014	0.161
	n	8	9	9	9	9	8	9	9	9		NA	9	9	9	9	9	9
Big Lake Channel	Maximum	49.9	22.9	11.333	0.613	840	1041.7	60.14	169	364	494	NA	284	32	883	373	3.58	0.73
	Minimum	4.9	13.6	0.726	0.355	390	123.3	43.42	113	229	48	NA	209	19	731	247	0.72	0.18
	Mean	21.1	17.7	4.730	0.452	549	492.3	54.25	155	283	228	NA	233	23	791	314	1.51	0.28
	Standard deviation	16.73	3.46	3.6068	0.1007	164.0	342.05	4.902	20.0	45.4	140.7	NA	29.0	4.0	67.4	47.9	1.213	0.206
	n	8	9	9	9	9	8	9	9	9	9	NA	9	9	9	9	9	9
New Lake	Maximum	8.1	23.6	1.226	0.613	910	86.7	66.19	198	302	35	NA	254	31	908	354	4.30	0.55
	Minimum	3.7	13.6	0.374	0.323	450	42.5	42.35	141	239	9	NA	209	21	763	268	0.72	0.18
	Mean	6.1	17.5	0.755	0.440	595	66.3	54.63	164	274	21	NA	235	25	823	318	1.70	0.23
	Standard deviation	1.49	4.15	0.3143	0.1278	168.7	18.20	8.041	21.3	23.6	10.2	NA	18.0	4.2	56.5	31.0	1.481	0.129
	n	8	8	8	8	8	8	8	8	8	8	NA	8	8	8	8	8	8
NRC Lake	Maximum	9.0	46.4	0.759	0.581	1130	72.5	61.21	480	364	6	NA	552	51	1102	634	3.58	1.09
	Minimum	1.7	25.0	0.181	0.387	740	19.2	1.00	367	312	1	NA	435	2	436	436	0.72	0.18
	Mean	4.6	34.5	0.374	0.495	909	43.8	20.08	419	338	2	NA	491	25	723	567	1.35	0.32
	Standard deviation	2.32	8.30	0.1898	0.0603	146.6	18.48	23.312	34.6	20.2	1.6	NA	42.1	19.5	311.5	85.7	1.101	0.313
	n	8	9	9	9	9	8	9	9	9	9	NA	9	9	9	9	9	9
South Lake	Maximum	9.4	25.0	1.914	0.710	910	84.2	55.87	169	271	60	NA	257	31	955	356	5.02	0.73
	Minimum	2.1	19.3	0.284	0.355	610	25.8	3.08	141	219	3	NA	224	27	741	262	0.72	0.18
	Mean	5.7	22.1	0.778	0.491	753	54.4	45.83	162	248	18	NA	236	29	858	313	2.31	0.28
	Standard deviation	2.15	2.29	0.5559	0.1385	105.5	17.92	5.765	12.5	20.5	18.6	NA	12.2	1.3	94.8	37.6	1.988	0.206
	n	9	9	9	9	9	9	9	9	9	9	NA	9	9	9	9	9	9
South Lake Bay	Maximum	8.1	25.7	1.989	0.710	980	80.0	56.94	169	271	63	NA	253	34	955	351	4.30	0.73
	Minimum	2.4	21.4	0.245	0.355	650	29.2	25.84	141	219	2	NA	213	25	741	265	0.72	0.18
	Mean	5.0	23.7	0.648	0.495	783	50.1	43.73	162	247	15	NA	236	29	834	313	2.23	0.28
	Standard deviation	1.80	1.77	0.5752	0.1424	109.3	16.45	9.597	12.5	20.0	20.5	NA	12.4	3.5	78.5	36.0	1.808	0.206
	n	9	9	9	9	9	9	9	9	9	9	NA	9	9	9	9	9	9
Skidoo Lake	Maximum	10.2	27.9	2.087	0.677	890	127.5	64.41	169	312	76	NA	257	32	925	361	4.30	0.73
	Minimum	2.4	14.3	0.439	0.355	420	33.3	43.77	141	234	10	NA	212	21	766	271	0.72	0.18
	Mean	6.3	19.0	1.089	0.477	629	75.3	53.50	155	276	35	NA	236	26	831	315	1.91	0.28
	Standard deviation	2.56	4.86	0.5765	0.1338	196.8	32.46	6.225	14.1	29.6	22.4	NA	16.0	3.7	54.3	33.4	1.478	0.206
	n	9	9	9	9	9	9	9	9	9	9	NA	9	9	9	9	9	9
	Maximum	51.7	46.4	11.333	0.710	1130	1190.8	66.19	480	364	503	NA	552	51	1102	634	5.02	1.09
	Minimum	1.7	13.6	0.181	0.323	390	19.2	1.00	113	219	1	NA	207	2	436	247	0.72	0.18
	Mean	10.0	21.9	1.862	0.475	683	178.6	46.46	197	278	82	NA	273	26	807	351	1.85	0.28
	Standard deviation	11.41	7.10	2.3961	0.1156	191.9	267.46	15.626	94.5	41.0	127.3	NA	93.9	8.0	135.6	100.7	1.443	0.203
	n	59	62	62	62	62	59	62	62	62	61	NA	62	62	62	62	62	62

Table 7. Cont. (page 2 of 2).

LAKE		FWI DIC	Inuvik TIC	Inuvik SIC	Total Alkal	Organ Acids	pH at 25C FWI	pH at 25C In situ	Sp conductance at 25C µS/cm FWI	Sp conductance at 25C µS/cm In situ	Chlorophyll-a µg/L FWI	Chlorophyll-a µg/L Inuvik	In situ temp C	10 cm absorbance at * 455 nm C & F	543 nm UF	543 nm F	543 nm C & F
		µmol/L			µeq/L												
East Channel	Maximum	2080	1922		2310	67	8.35	8.2	270	281	1.6	2.6					
	Minimum	1610	1515	See	1840	1	8.16	7.6	216	205	0.5	0.6	See				
	Mean	1871	1718	Table	1986	30	8.25	8.0	241	245	1.1	1.2	Table	----------See Table 8----------			
	Standard deviation	179.7	141.2	8	136.9	22.1	0.071	0.19	22.6	29.0	0.36	0.66	8				
	n	7	9		9	9	9	9	9	9	9	9					
Big Lake Channel	Maximum	1990	1870	204	2300	66	8.32	8.3	271	279	15.1	2.5	16.6	0.138	10.500	0.120	0.051
	Minimum	1500	1451	60	1800	1	8.11	7.8	216	204	0.5	0.4	7.5	0.042	1.110	0.037	0.012
	Mean	1815	1692	132	1959	31	8.23	8.2	242	242	2.6	1.3	13.0	0.075	4.086	0.068	0.028
	Standard deviation	200.9	128.6	101.4	151.9	22.7	0.067	0.17	22.5	28.5	4.70	0.62	3.25	0.0361	2.8296	0.0285	0.0148
	n	7	9	2	9	9	9	9	9	9	9	9	9	9	9	9	9
New Lake	Maximum	2170	1838	24	1930	58	8.34	8.6	267	271	4.9	6.2	17.7	0.145	1.120	0.121	0.063
	Minimum	1660	1398	8	1630	1	8.17	7.7	226	220	1.1	1.5	8.3	0.033	0.283	0.023	0.009
	Mean	1958	1675	15	1808	23	8.27	8.2	249	253	3.3	4.7	14.0	0.075	0.626	0.059	0.031
	Standard deviation	182.8	151.0	8.2	120.0	23.1	0.073	0.26	15.2	15.6	1.18	1.44	3.31	0.0405	0.3493	0.0347	0.0202
	n	7	9	3	8	8	8	8	8	8	8	8	8	8	8	8	8
NRC Lake	Maximum	2890	2488	22	2860	122	9.65	10.5	373	405	4.3	9.0	19.6	0.065	0.188	0.029	0.028
	Minimum	1060	739	7	1460	1	8.08	8.0	260	272	1.1	1.8	4.1	0.024	0.030	0.012	0.008
	Mean	1786	1463	13	1983	49	8.83	9.1	301	319	2.3	3.9	14.3	0.046	0.076	0.023	0.017
	Standard deviation	767.7	759.0	8.1	560.6	39.9	0.610	1.12	45.5	51.6	1.08	2.51	5.24	0.0150	0.0485	0.0052	0.0064
	n	7	8	3	9	9	9	9	9	9	9	9	9	9	9	9	9
South Lake	Maximum	2460	1896	22	2080	59	8.36	8.6	276	279	9.3	11.8	18.3	0.155	2.210	0.113	0.062
	Minimum	1640	1497	7	1570	7	8.03	7.6	216	197	0.3	0.7	3.7	0.039	0.058	0.020	0.011
	Mean	2087	1708	12	1872	35	8.21	8.1	249	251	3.1	4.3	13.0	0.093	0.627	0.062	0.036
	Standard deviation	293.6	190.9	8.2	224.7	18.1	0.110	0.28	25.3	30.8	2.66	3.31	4.71	0.0485	0.7187	0.0391	0.0218
	n	7	8	3	9	9	9	9	9	9	9	9	9	9	9	9	9
South Lake Bay	Maximum	2440	1976	13	2110	69	8.43	9.1	272	300	5.7	8.2	18.7	0.162	2.250	0.121	0.080
	Minimum	1660	1506	6	1620	9	7.92	7.7	216	197	0.4	1.0	4.1	0.040	0.048	0.015	0.012
	Mean	2016	1696	9	1839	42	8.21	8.4	245	249	2.5	3.5	13.4	0.093	0.517	0.064	0.039
	Standard deviation	306.6	164.9	3.6	186.0	22.5	0.166	0.54	21.3	31.2	1.57	2.12	4.75	0.0457	0.7660	0.0419	0.0232
	n	7	9	3	9	9	9	9	9	9	9	9	9	9	9	9	9
Skidoo Lake	Maximum	2150	1805	38	1960	60	8.35	8.6	273	275	5.1	6.2	17.7	0.150	2.350	0.136	0.060
	Minimum	1720	1438	9	1670	1	8.08	8.1	223	208	0.4	1.0	6.2	0.030	0.308	0.026	0.009
	Mean	1970	1644	24	1818	31	8.24	[illegible]	248	251	3.0	4.1	13.2	0.083	1.106	0.070	0.034
	Standard deviation	158.8	136.6	20.6	113.3	23.7	0.093	0.17	17.1	22.1	1.61	1.94	3.98	0.0452	0.7584	0.0345	0.0200
	n	7	9	2	9	9	9	9	9	9	9	9	9	9	9	9	9
	Maximum	2890	2488	507	2860	122	9.65	10.5	373	405	15.1	11.8	19.6	0.162	10.500	0.136	0.080
	Minimum	1060	739	6	1460	1	7.92	7.6	216	197	0.3	0.4	3.7	0.024	0.030	0.012	0.008
	Mean	1929	1659	107	1896	35	8.32	8.4	254	258	2.6	3.3	13.4	0.077	1.627	0.060	0.030
	Standard deviation	350.9	303.1	137.5	258.0	25.4	0.321	0.60	31.8	39.4	2.30	2.33	3.97	0.0397	2.2530	0.0339	0.0182
	n	49	61	25	62	62	62	62	62	62	62	62	62	62	62	62	62

UF = unfiltered, F = filtered, C = centrifuged

Table 8. Maximum, minimum, mean, sample standard deviation and sample size for the Mackenzie Delta Channels suspended sediment data in Table 5. Statistics for SIC and in situ temperature data for East Channel are also included.

LAKE		FSS mg/L		Inuvik SIC µmol/L	In situ temp C	Absorbance at *			
						455 nm	543 nm		
		FWI	Inuvik			F & C	UF	F	F & C
East Channel	Maximum	503	527	507	18.7	0.122	10.300	0.106	0.045
	Minimum	28	48	36	7.0	0.041	0.700	0.027	0.010
	Mean	153	156	158	13.6	0.066	3.170	0.058	0.025
	Standard deviation	113.4	124.3	108.6	3.32	0.0207	2.2177	0.0201	0.0087
	n	37	26	52	58	20	65	61	20
Skidoo L Ch East	Maximum	411	487	NA	NA	0.052	10.800	0.091	0.020
	Minimum	71	40	NA	NA	0.045	1.600	0.023	0.018
	Mean	219	258	NA	NA	0.049	4.832	0.052	0.019
	Standard deviation	123.1	162.7	NA	NA	0.0047	2.8486	0.0200	0.0014
	n	10	13	0	0	2	24	23	2
Skidoo L Ch West	Maximum	499	475	NA	NA	0.050	8.300	0.093	0.018
	Minimum	23	42	NA	NA	0.048	1.020	0.030	0.015
	Mean	141	154	NA	NA	0.049	2.956	0.057	0.017
	Standard deviation	131.8	127.7	NA	NA	0.0014	2.0704	0.0200	0.0021
	n	11	13	0	0	2	24	22	2
	Maximum	503	527	507	18.7	0.122	10.800	0.106	0.045
	Minimum	23	40	36	7.0	0.041	0.700	0.023	0.010
	Mean	162	181	158	13.6	0.063	3.477	0.056	0.024
	Standard deviation	119.4	140.2	108.6	3.32	0.0199	2.4215	0.0200	0.0084
	n	58	52	52	58	24	113	106	24

* UF = unfiltered, F = filtered, C = centrifuged

Table 9. A comparison of the statistics of the water quality and water chemistry data for the lakes and channels sampled in 1985 and 1986. Statistics of samples from the Mackenzie Delta and Kukjuktuk Bay study areas are compared by means of ratios. The numbers presented are the 1986 statistic divided by the 1985 statistic. Values ERR are due to division by 0.

LOCATION**	STATISTIC	SN	TDN	SP	TDP	DOC	TSC	SRSi	Cl	SO4	FSS		Na	K	Ca	Mg	TDFe	TDMn
											FWI	Inuvik						
EAST CHANNEL	Maximum	1.77	NA	1.57	1.25	1.46	2.30	1.02	0.86	1.17	1.60	NA	0.92	1.12	1.06	1.05	1.60	NA
	Minimum	0.78	NA	1.44	1.37	1.24	1.38	0.88	1.00	1.22	1.12	NA	1.03	0.95	1.04	0.94	2.00	NA
	Mean	2.04	NA	1.65	1.23	1.23	2.20	1.00	1.03	1.11	1.25	NA	0.97	0.98	1.06	1.03	0.98	NA
	Standard deviation	2.18	NA	1.28	1.27	1.88	2.37	1.63	0.67	0.98	1.21	NA	0.70	2.17	1.44	1.49	1.53	NA
	n	1.00	NA	0.90	0.90	0.90	1.00	0.90	0.90	0.90	3.70	NA	0.90	0.90	0.90	0.90	0.90	NA
BIG LAKE CHANNEL	Maximum	2.15	NA	2.15	1.27	1.56	1.60	1.03	0.86	1.13	2.36	NA	0.84	1.24	1.05	1.06	1.33	NA
	Minimum	0.92	NA	0.97	1.37	1.18	1.50	0.90	1.00	1.22	2.18	NA	1.05	0.88	1.05	0.93	1.00	NA
	Mean	1.95	NA	1.96	1.23	1.27	1.86	1.00	1.01	1.09	2.38	NA	0.93	0.97	1.05	1.03	0.92	NA
	Standard deviation	2.60	NA	2.41	1.33	2.26	1.72	1.61	0.70	1.02	2.13	NA	0.63	3.03	1.41	1.57	1.88	NA
	n	0.89	NA	1.00	1.00	1.00	0.89	1.00	1.00	1.00	1.00	NA	1.00	1.00	1.00	1.00	1.00	NA
SOUTH LAKE	Maximum	0.52	NA	3.02	1.22	1.11	1.25	1.00	0.92	1.00	6.67	NA	0.90	0.86	1.04	1.02	0.93	NA
	Minimum	0.69	NA	0.96	1.22	1.22	0.97	1.48	1.00	1.24	1.00	NA	0.99	0.86	0.98	0.92	1.00	NA
	Mean	0.78	NA	1.72	1.21	1.04	1.11	1.04	1.04	1.09	3.25	NA	0.94	0.85	1.00	0.99	0.81	NA
	Standard deviation	0.48	NA	5.47	1.24	1.02	1.51	0.48	0.72	0.65	8.59	NA	0.58	0.90	1.53	1.66	1.11	NA
	n	1.00	NA	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.50	NA	1.00	1.00	1.00	1.00	1.00	NA
SOUTH LAKE BAY	Maximum	0.81	NA	2.52	1.16	1.18	1.02	1.03	0.92	0.96	7.00	NA	0.88	0.95	1.04	1.00	0.73	NA
	Minimum	0.69	NA	0.90	1.22	1.03	1.00	2.69	1.00	1.24	0.67	NA	0.93	0.84	0.97	0.94	1.00	NA
	Mean	0.81	NA	1.47	1.21	1.03	0.99	1.09	1.04	1.05	3.65	NA	0.94	0.86	1.01	0.99	0.80	NA
	Standard deviation	0.89	NA	3.29	1.30	1.45	1.05	0.50	0.72	0.51	8.53	NA	0.56	1.58	1.31	1.47	0.97	NA
	n	1.00	NA	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.50	NA	1.00	1.00	1.00	1.00	1.00	NA
SKIDOO LAKE	Maximum	1.20	NA	1.48	1.23	1.16	1.15	1.15	1.00	1.05	1.69	NA	0.88	0.97	1.04	1.04	1.09	NA
	Minimum	0.72	NA	1.13	1.37	1.00	1.00	1.78	1.00	1.18	1.25	NA	0.90	0.89	0.99	0.93	1.00	NA
	Mean	1.03	NA	1.48	1.28	1.17	1.16	1.20	0.99	1.08	2.00	NA	0.94	0.92	1.02	1.00	0.98	NA
	Standard deviation	1.43	NA	1.75	1.31	1.55	1.29	0.51	0.95	0.80	1.88	NA	0.71	1.35	1.24	1.61	1.24	NA
	n	1.00	NA	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	NA	1.00	1.00	1.00	1.00	1.00	NA
KUK LAKE 10	Maximum	3.27	NA	2.49	1.20	1.18	2.92	1.80	0.74	0.56	5.50	NA	0.72	0.89	0.88	0.83	1.14	NA
	Minimum	0.57	NA	0.58	1.00	0.95	0.58	1.25	0.82	1.17	0.67	NA	0.76	0.74	0.73	0.75	1.00	NA
	Mean	1.93	NA	1.83	1.17	0.99	2.01	1.35	0.77	0.55	3.27	NA	0.72	0.82	0.81	0.75	1.26	NA
	Standard deviation	7.92	NA	4.46	1.63	1.62	5.49	2.16	0.44	0.26	11.41	NA	0.73	1.98	1.58	1.07	1.38	NA
	n	1.17	NA	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.40	NA	1.17	1.17	1.17	1.17	1.17	NA
KUK LAKE 18	Maximum	1.22	NA	1.20	1.00	0.90	1.42	1.91	0.90	1.05	2.50	NA	0.87	0.96	1.08	1.01	1.00	NA
	Minimum	1.23	NA	1.30	1.43	1.08	1.33	2.51	1.00	1.75	2.00	NA	0.91	1.06	1.11	1.11	1.00	NA
	Mean	1.11	NA	1.13	1.16	0.97	1.20	2.14	0.96	1.11	1.67	NA	0.86	0.98	1.08	1.03	1.00	NA
	Standard deviation	1.37	NA	1.34	0.48	0.56	1.73	1.87	0.64	0.42	2.74	NA	0.77	0.36	0.86	0.48	0.80	NA
	n	0.83	NA	0.83	0.83	0.83	0.83	0.83	0.83	0.83	1.00	NA	0.83	0.83	0.83	0.83	0.83	NA

Table 9. Cont. (page 2 of 2).

LOCATION**	STATISTIC	FWI DIC	Inuvik TIC	Inuvik SIC	Total Alkal	Organ Acids	pH FWI	pH In situ	Sp conductance at 25C FWI	Sp conductance at 25C In situ	Chlorophyll-a FWI	Chlorophyll-a Inuvik	In situ temp	10 cm absorbance at * 455 nm F & C	10 cm absorbance at * 543 nm UF	10 cm absorbance at * 543 nm F	10 cm absorbance at * 543 nm F & C
		µmol/L			µeq/L												
EAST CHANNEL	Maximum	NA	0.95	NA	1.09	0.89	0.99	0.99	1.01	1.02	0.47	0.39	1.07	0.87	0.64	0.96	0.79
	Minimum	NA	0.93	NA	1.03	1.00	1.00	1.00	1.01	0.99	0.56	0.42	1.13	1.17	1.13	0.96	10.00
	Mean	NA	0.96	NA	1.06	0.62	1.00	1.00	1.02	1.04	0.60	0.42	1.07	1.01	0.96	1.12	1.09
	Standard deviation	NA	1.41	NA	1.25	0.87	0.80	0.90	1.25	1.26	0.46	0.41	1.24	0.61	0.48	0.78	0.56
	n	NA	0.75	NA	0.90	1.29	0.90	1.13	0.90	0.90	0.75	0.75	0.75	2.00	6.50	6.10	2.00
BIG LAKE CHANNEL	Maximum	NA	0.94	NA	1.17	0.83	0.99	0.94	1.01	1.01	4.44	0.39	1.07	1.28	2.66	1.33	1.19
	Minimum	NA	0.94	NA	1.03	0.08	1.00	1.03	1.01	0.99	0.56	0.31	0.73	1.35	1.93	1.42	ERR
	Mean	NA	0.97	NA	1.06	0.66	1.00	1.00	1.02	1.02	1.40	0.46	0.99	1.25	2.20	1.42	1.37
	Standard deviation	NA	1.06	NA	1.89	0.90	0.71	0.43	1.18	1.30	5.91	0.41	1.76	1.39	2.28	1.36	1.18
	n	NA	1.00	NA	1.00	1.50	1.00	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
SOUTH LAKE	Maximum	NA	0.84	NA	0.95	0.71	1.00	0.97	1.00	0.98	1.60	1.49	1.05	0.99	7.02	0.94	0.98
	Minimum	NA	0.92	NA	0.92	0.78	0.99	1.04	0.98	0.86	0.16	0.23	0.43	0.98	0.73	1.33	1.57
	Mean	NA	0.90	NA	0.94	0.66	1.00	0.98	0.98	0.98	1.01	0.96	0.97	1.08	3.87	1.44	1.27
	Standard deviation	NA	0.93	NA	1.30	0.72	1.03	0.49	1.20	1.63	2.06	2.10	1.58	1.11	10.03	1.09	1.09
	n	NA	0.89	NA	1.00	1.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
SOUTH LAKE BAY	Maximum	NA	0.94	NA	0.98	0.83	1.00	0.98	1.01	1.04	0.95	1.00	1.07	1.00	6.66	0.99	1.23
	Minimum	NA	0.99	NA	0.93	0.36	0.99	1.03	0.96	0.89	0.24	0.39	0.51	0.95	0.77	2.14	4.00
	Mean	NA	0.94	NA	0.96	0.68	0.99	1.00	0.98	0.98	0.81	0.79	1.00	1.11	3.96	1.57	1.38
	Standard deviation	NA	0.84	NA	1.13	1.05	1.18	0.78	1.32	1.45	1.15	1.21	1.54	1.01	8.72	1.11	1.12
	n	NA	1.00	NA	1.00	1.50	1.00	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
SKIDOO LAKE	Maximum	NA	0.97	NA	0.98	0.72	0.98	0.98	0.97	1.02	1.28	1.17	1.06	1.11	2.04	1.70	1.15
	Minimum	NA	0.92	NA	0.95	1.00	1.00	1.04	0.97	0.88	0.36	0.54	0.78	1.00	1.86	1.73	ERR
	Mean	NA	0.94	NA	0.98	0.62	1.00	1.00	1.00	1.01	1.14	1.10	1.03	1.24	2.35	1.89	1.51
	Standard deviation	NA	1.23	NA	1.26	0.78	0.71	0.46	0.98	2.12	1.63	1.62	1.43	1.11	2.58	1.44	1.11
	n	NA	1.00	NA	1.00	1.50	1.00	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
KUK LAKE 10	Maximum	NA	0.93	NA	0.86	1.69	0.96	0.92	0.84	0.84	6.03	4.01	1.13	2.00	5.17	2.82	2.13
	Minimum	NA	0.69	NA	0.68	0.47	0.94	0.97	0.79	0.64	0.10	0.13	0.57	2.55	0.82	2.00	9.00
	Mean	NA	0.87	NA	0.80	1.04	0.95	0.96	0.80	0.78	3.40	2.70	0.98	2.05	2.68	2.61	3.08
	Standard deviation	NA	2.30	NA	1.81	22.80	0.96	0.61	1.20	1.73	11.13	8.20	1.38	1.26	11.55	3.97	1.06
	n	NA	0.86	NA	1.17	3.50	1.17	0.71	1.17	0.86	1.17	1.17	0.86	1.00	1.17	1.00	1.00
KUK LAKE 18	Maximum	NA	1.06	NA	0.97	2.13	0.97	0.92	1.01	1.08	1.42	1.51	1.31	2.42	2.09	1.88	2.00
	Minimum	NA	1.03	NA	1.08	0.62	1.00	0.97	1.11	0.47	1.26	1.25	1.24	3.00	0.46	ERR	-2.00
	Mean	NA	1.05	NA	1.00	1.80	0.99	0.97	1.04	0.94	1.31	1.32	1.29	2.27	1.49	2.20	5.25
	Standard deviation	NA	1.88	NA	0.31	3.04	0.48	0.98	0.39	4.79	2.00	2.47	1.27	2.30	11.21	1.05	1.05
	n	NA	0.57	NA	0.83	1.67	0.83	0.57	0.83	0.71	0.83	0.83	0.71	0.67	0.83	0.67	0.67

** Kuk = Kukjuktuk * UF = unfiltered, F = filtered, C = centrifuged

Table 10. Table of observed alkalinities and alkalinities calculated from the Kukjuktuk lakes and Noel Lake data. Units are $\mu eq \cdot L^{-1}$.

Anal #	B-	LAKE	Date	Day #	Observed FWI TA	Alkalinity calculated from: Major ions	FWI DIC	Inuvik TIC	Inuvik DIC= TIC-SIC
316		Kuk Lake 10	02-Jul	183	520	517	468	655	NA
325		Kuk Lake 10	07-Jul	188	470	455	381	446	NA
341		Kuk Lake 10	14-Jul	195	560	574	656	NA	NA
375		Kuk Lake 10	29-Jul	210	666	683	795	NA	NA
435		Kuk Lake 10	13-Aug	225	714	745	790	NA	NA
456		Kuk Lake 10	25-Aug	237	704	816	686	772	NA
549		Kuk Lake 10	04-Sep	247	728	848	712	712	707
326		Kuk Lake 18	07-Jul	188	NA	NA	NA	NA	NA
342		Kuk Lake 18	14-Jul	195	1270	1245	1492	NA	NA
374		Kuk Lake 18	29-Jul	210	1234	1289	1469	NA	NA
434		Kuk Lake 18	13-Aug	225	1284	1298	1396	NA	NA
457		Kuk Lake 18	25-Aug	237	1268	1360	1321	1342	NA
550		Kuk Lake 18	04-Sep	247	1284	1415	1331	1243	1233
317		Noell Lake	02-Jul	183	340	368	284	316	NA
327		Noell Lake	07-Jul	188	340	339	272	NA	NA
343		Noell Lake	14-Jul	195	340	363	382	NA	NA
373		Noell Lake	29-Jul	210	338	367	375	NA	NA
436		Noell Lake	13-Aug	225	336	370	380	NA	NA
455		Noell Lake	25-Aug	237	330	359	303	361	NA
548		Noell Lake	04-Sep	247	344	366	329	323	NA

Table 11. Table of observed alkalinities and alkalinities calculated from the Mackenzie Delta lakes and channels data. Units are $\mu eq \cdot L^{-1}$.

Anal #	B- LAKE	Date	Day #	Observed FWI TA	Alkalinity calculated from Major ions	FWI DIC	Inuvik TIC	Inuvik DIC= TIC-SIC
277	New Lake	16-Jun	167	1630	1695	NA	1405	NA
290	New Lake	23-Jun	174	1660	1719	1747	1569	NA
305	New Lake	30-Jun	181	1750	1786	1650	1384	NA
355	New Lake	17-Jul	198	1780	1721	2086	1748	NA
421	New Lake	05-Aug	217	1880	1880	2172	1772	NA
443	New Lake	18-Aug	230	1910	1723	2041	1728	NA
465	New Lake	28-Aug	240	1920	2047	1970	1741	1717
537	New Lake	01-Sep	244	NA	NA	NA	NA	NA
559	New Lake	07-Sep	250	1930	2070	2014	1754	1745
205	NRC Lake	12-Jun	163	2250	2308	NA	NA	NA
280	NRC Lake	16-Jun	167	2330	2370	NA	2164	NA
293	NRC Lake	23-Jun	174	2720	2581	2892	2338	NA
308	NRC Lake	30-Jun	181	2860	2822	2836	2438	NA
358	NRC Lake	17-Jul	198	1620	1583	1544	1268	NA
424	NRC Lake	05-Aug	217	1460	1453	1214	1002	936
446	NRC Lake	18-Aug	230	1530	1497	1288	1365	NA
468	NRC Lake	28-Aug	240	1480	1605	1728	1322	1228
562	NRC Lake	07-Sep	250	1600	1781	1759	1348	1315
202	South Lake	12-Jun	163	1590	1679	NA	1438	NA
276	South Lake	16-Jun	167	1570	1682	NA	1484	NA
289	South Lake	23-Jun	174	1660	1700	1746	1603	NA
304	South Lake	30-Jun	181	1770	1802	1623	1410	NA
354	South Lake	17-Jul	198	1940	1945	2241	1879	NA
420	South Lake	05-Aug	217	2080	2123	2465	NA	NA
442	South Lake	18-Aug	230	2080	2156	2271	1886	NA
464	South Lake	28-Aug	240	2080	2197	2040	1854	1832
558	South Lake	07-Sep	250	2080	2242	2178	1874	1865
201	South Lake Bay	12-Jun	163	1620	1712	NA	1472	NA
275	South Lake Bay	16-Jun	167	1620	1665	NA	1471	NA
288	South Lake Bay	23-Jun	174	1660	1695	1639	1585	NA
303	South Lake Bay	30-Jun	181	1760	1768	1690	1530	NA
353	South Lake Bay	17-Jul	198	1980	2011	2359	1901	NA
419	South Lake Bay	05-Aug	217	2110	2146	2442	2006	1995
441	South Lake Bay	18-Aug	230	2030	2017	2100	1854	NA
463	South Lake Bay	28-Aug	240	1950	2130	1997	1774	1758
557	South Lake Bay	07-Sep	250	1820	1998	1850	1683	1672
203	Skidoo Lake	12-Jun	163	1670	1705	NA	1503	NA
278	Skidoo Lake	16-Jun	167	1680	1774	NA	1451	NA
291	Skidoo Lake	23-Jun	174	1730	1779	1707	1612	NA
306	Skidoo Lake	30-Jun	181	1760	1796	1796	1423	NA
356	Skidoo Lake	17-Jul	198	1820	1771	2078	1715	NA
422	Skidoo Lake	05-Aug	217	1870	1830	2153	1796	NA
444	Skidoo Lake	18-Aug	230	1920	1808	2095	1670	NA
466	Skidoo Lake	28-Aug	240	1950	2060	1936	1780	1741
560	Skidoo Lake	07-Sep	250	1960	2099	1994	1776	1766
206	East Channel	12-Jun	163	1980	1676	NA	1667	1413
209	East Channel	13-Jun	164	NA	NA	NA	NA	NA
281	East Channel	16-Jun	167	1930	1625	NA	1413	1123
294	East Channel	23-Jun	174	1840	1600	1638	1535	1349
309	East Channel	30-Jun	181	1940	1631	1600	1554	1394
359	East Channel	17-Jul	198	1930	1683	1849	1720	1358
425	East Channel	05-Aug	217	1940	1802	2083	1772	1729
447	East Channel	18-Aug	230	2310	1774	2014	1867	1374
469	East Channel	28-Aug	240	2080	2022	1957	1855	1643
563	East Channel	07-Sep	250	1920	2009	1925	1725	NA
204	Big Lake Channel	12-Jun	163	1890	1623	NA	1699	NA
279	Big Lake Channel	16-Jun	167	1890	1668	NA	1631	NA
292	Big Lake Channel	23-Jun	174	1820	1634	1547	1554	NA
307	Big Lake Channel	30-Jun	181	1800	1601	1498	1437	NA
357	Big Lake Channel	17-Jul	198	1970	1647	1837	1649	NA
423	Big Lake Channel	05-Aug	217	1970	1728	1990	1672	NA
445	Big Lake Channel	18-Aug	230	2300	1807	1953	1792	NA
467	Big Lake Channel	28-Aug	240	2070	1997	1935	1836	1636
561	Big Lake Channel	07-Sep	250	1920	2013	1906	1746	1685

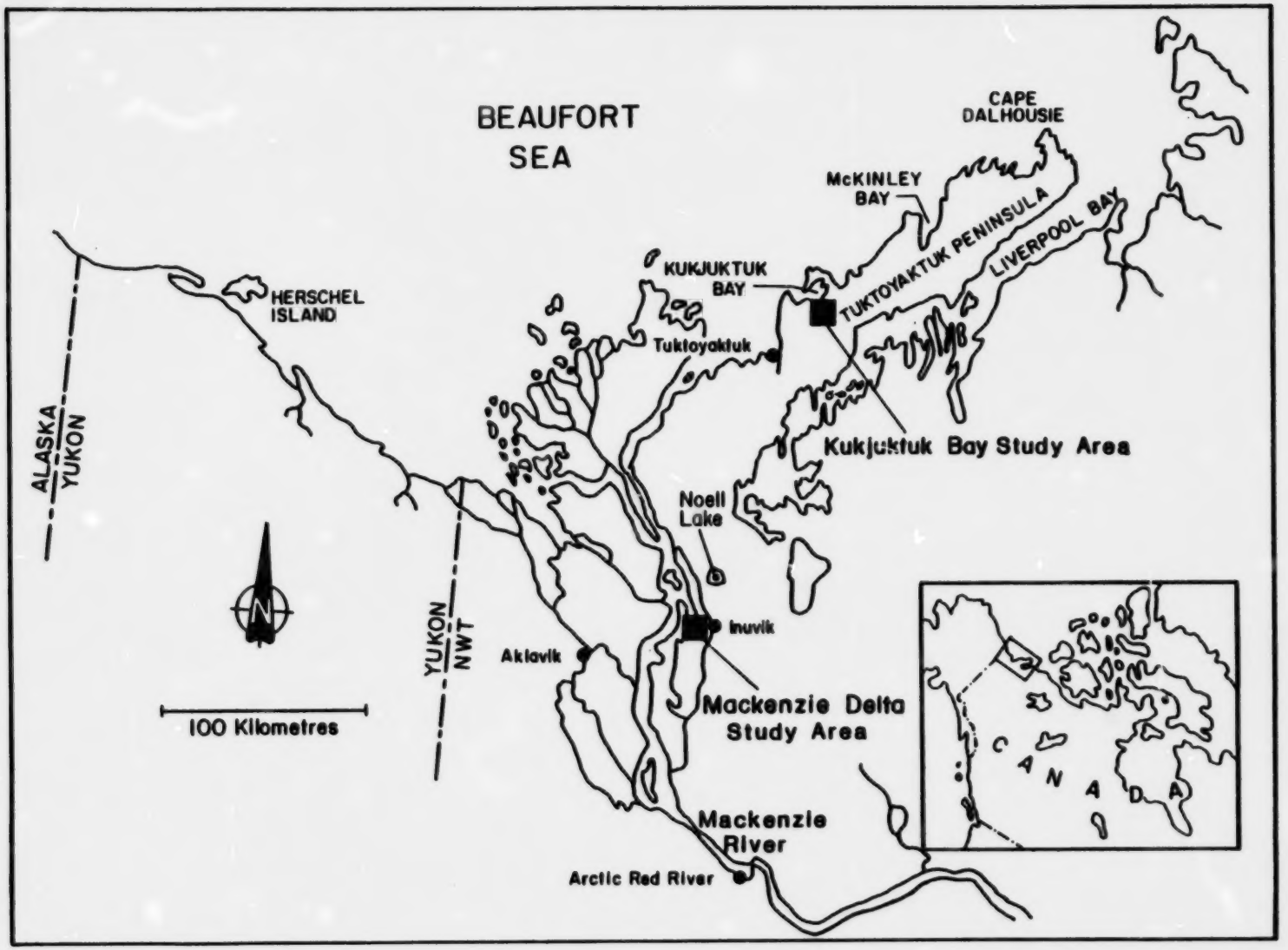


Fig. 1. Map of the Tuktoyaktuk Peninsula and the Mackenzie Delta and Noell Lake.

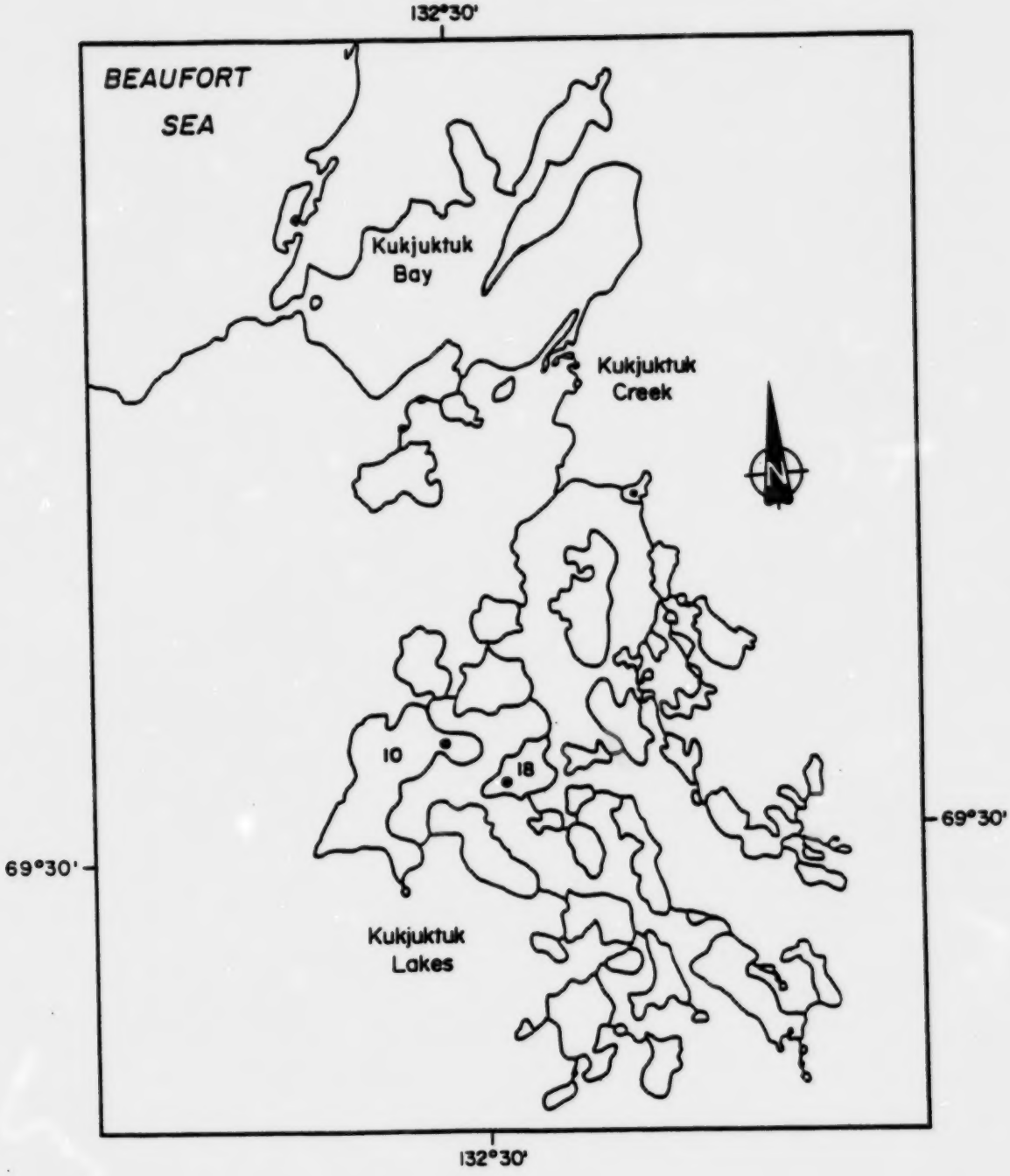


Fig. 2. Enlarged map of the Kukjuktuk Bay study area.

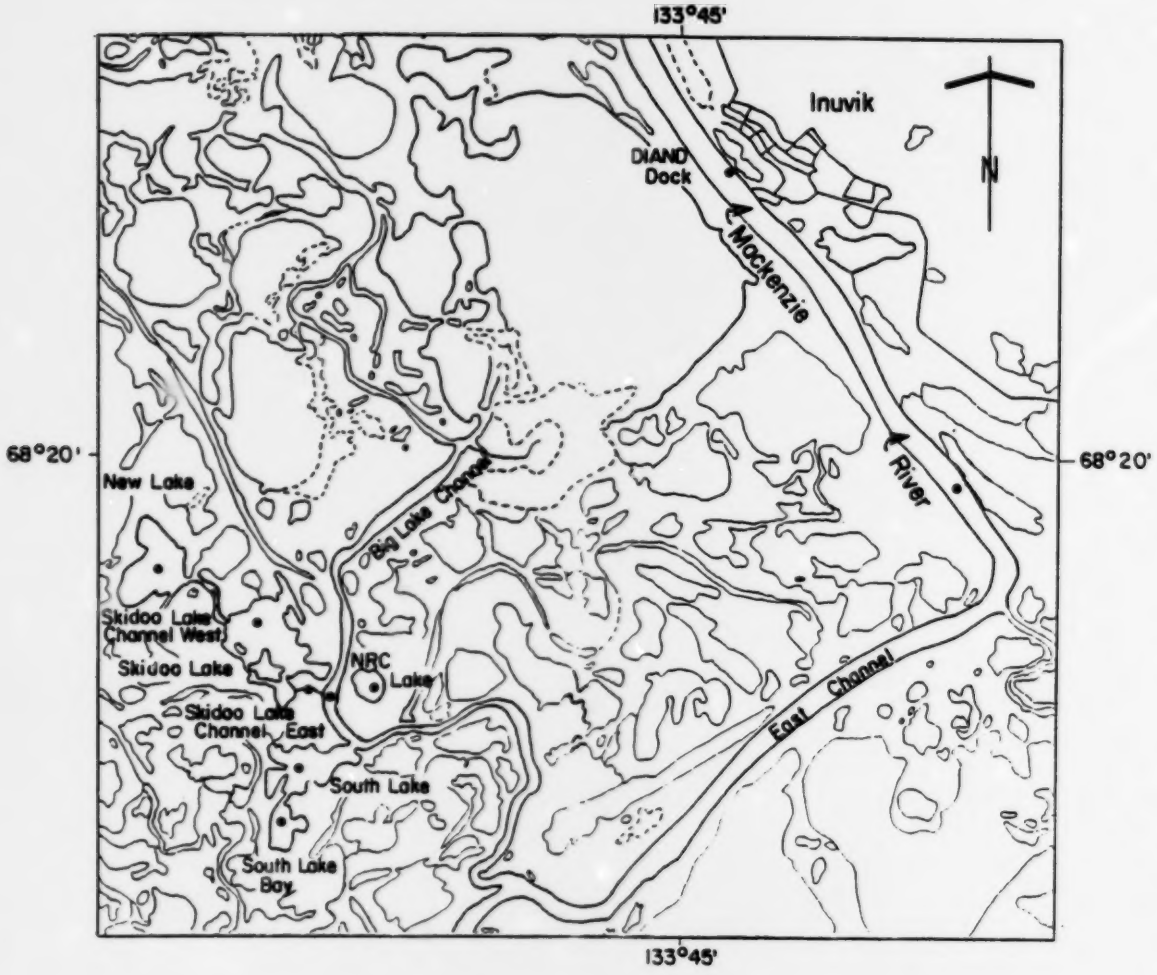


Fig. 3. Enlarged map of the Mackenzie Delta study area.

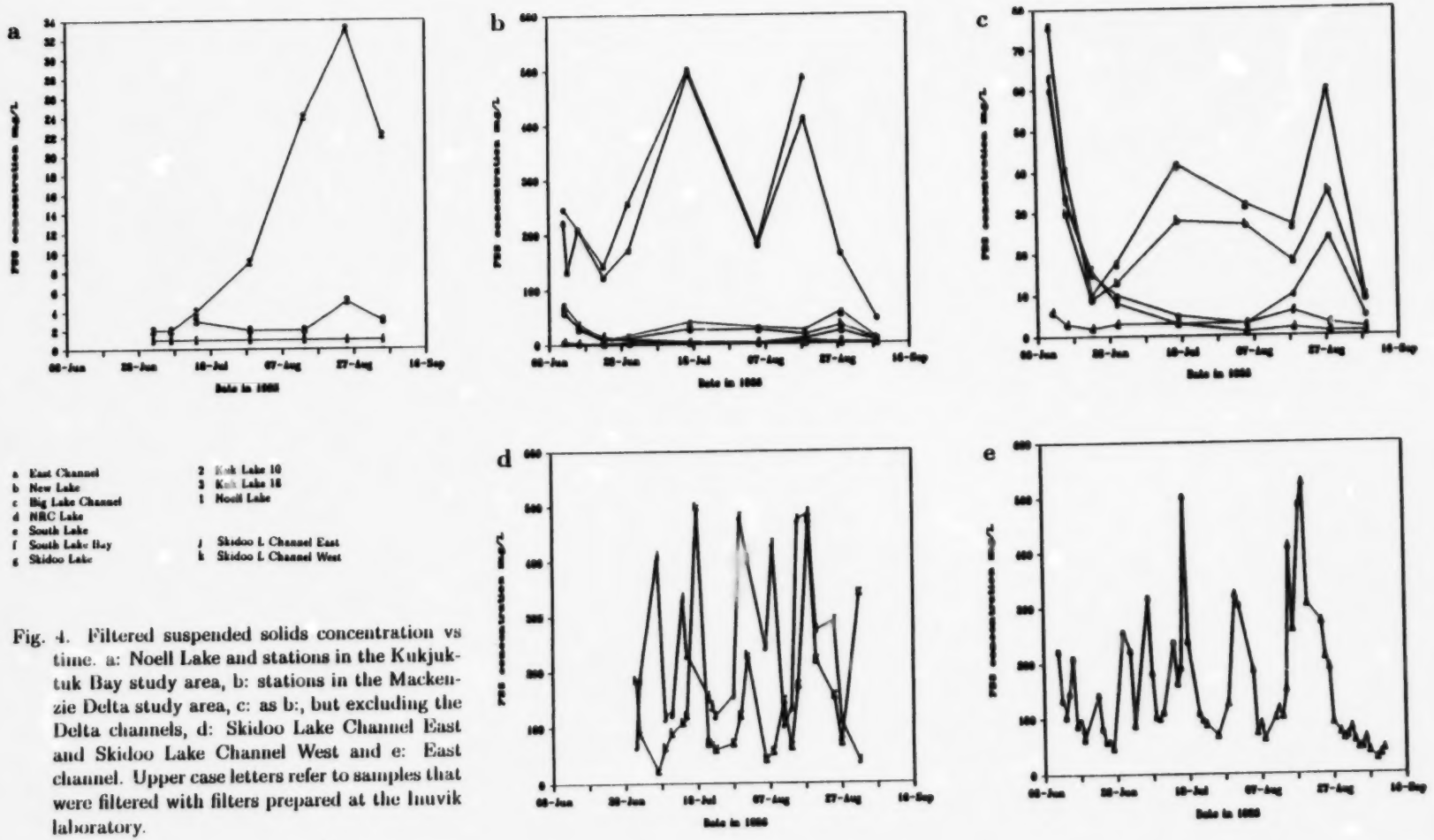


Fig. 4. Filtered suspended solids concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area, b: stations in the Mackenzie Delta study area, c: as b:, but excluding the Delta channels, d: Skidoo Lake Channel East and Skidoo Lake Channel West and e: East channel. Upper case letters refer to samples that were filtered with filters prepared at the Inuvik laboratory.

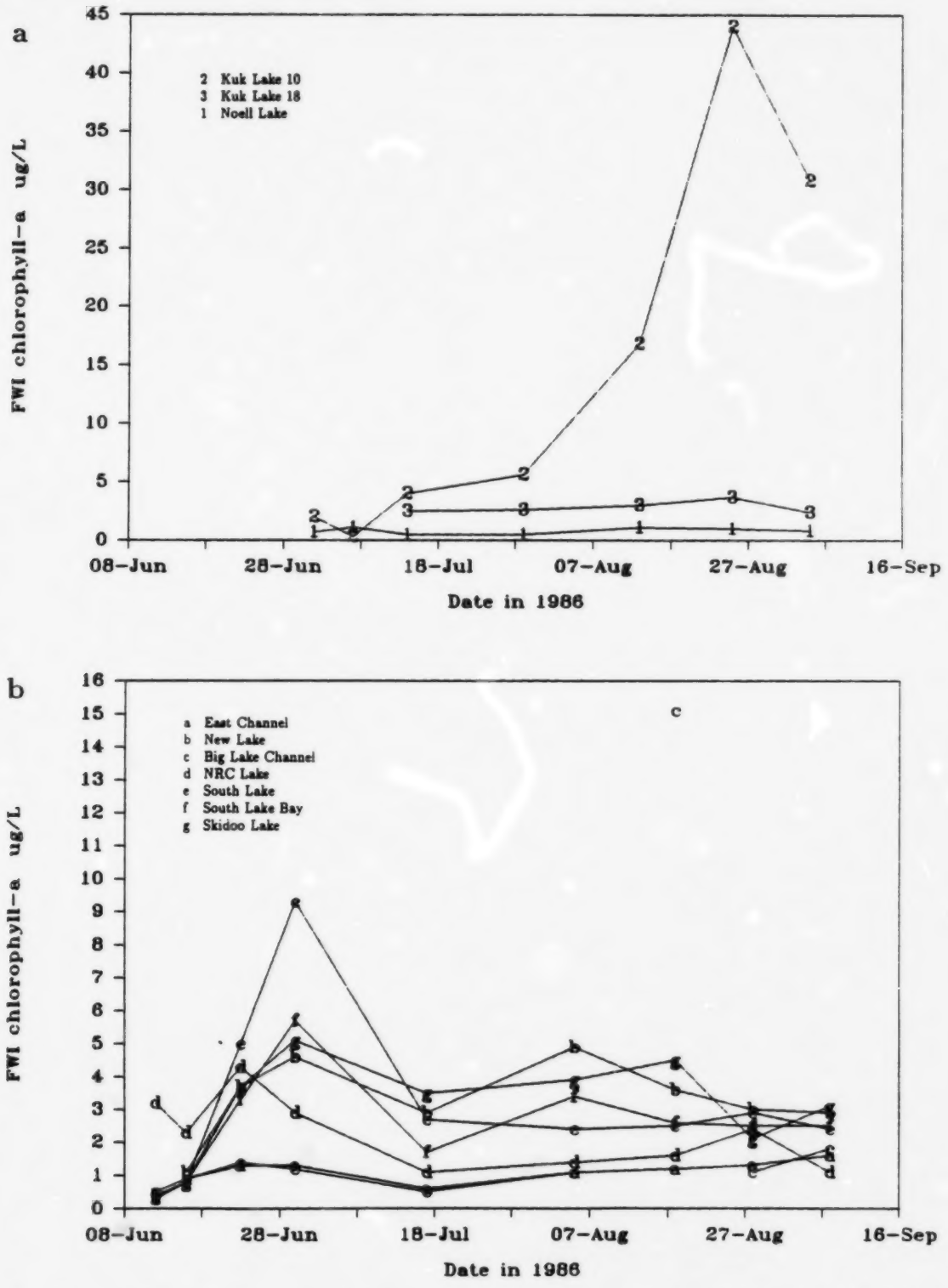


Fig. 5. FWI chlorophyll-a concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area and b: stations in the Mackenzie Delta study area.

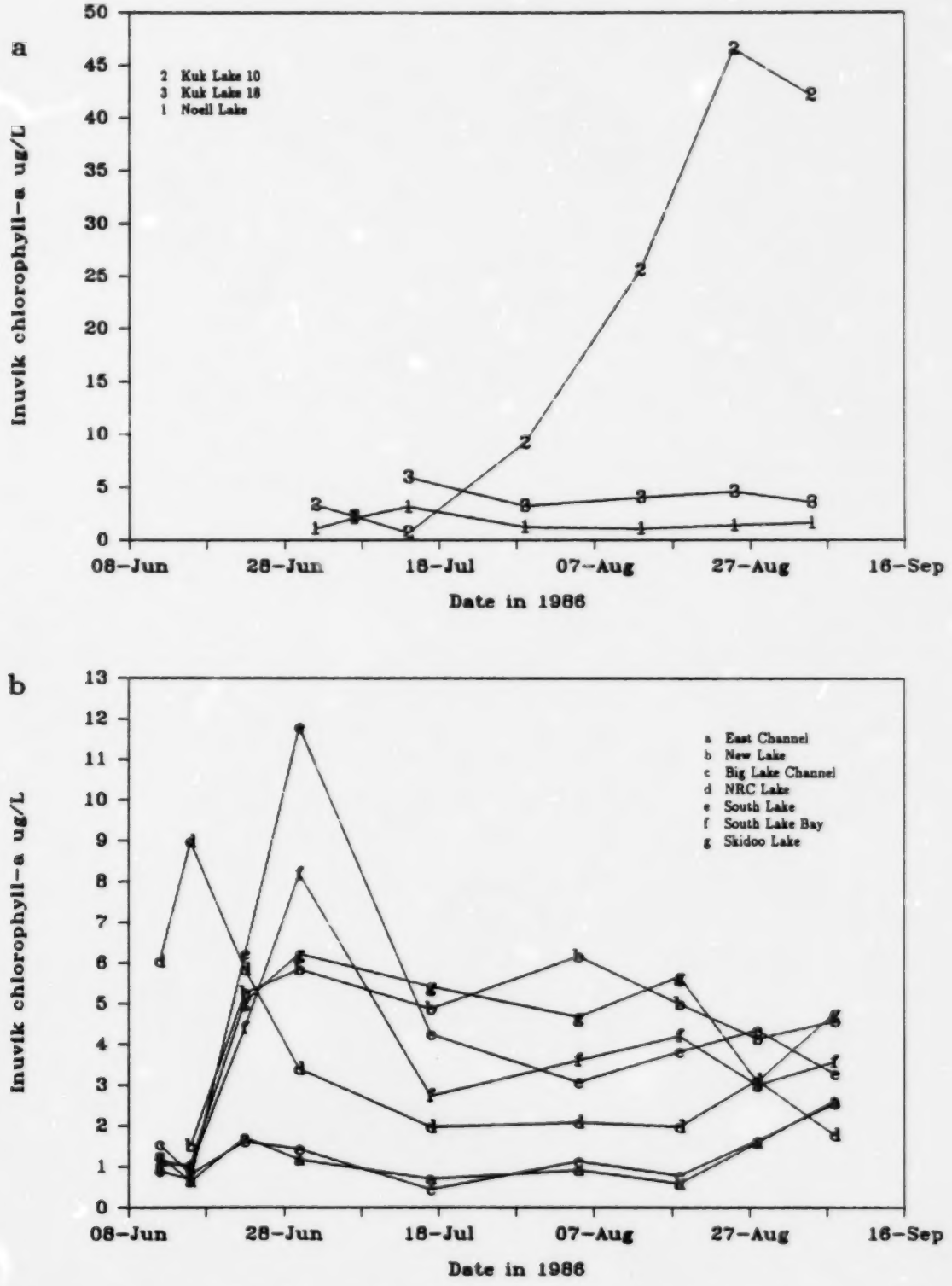


Fig. 6. Inuvik chlorophyll-a concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area and b: stations in the Mackenzie Delta study area.

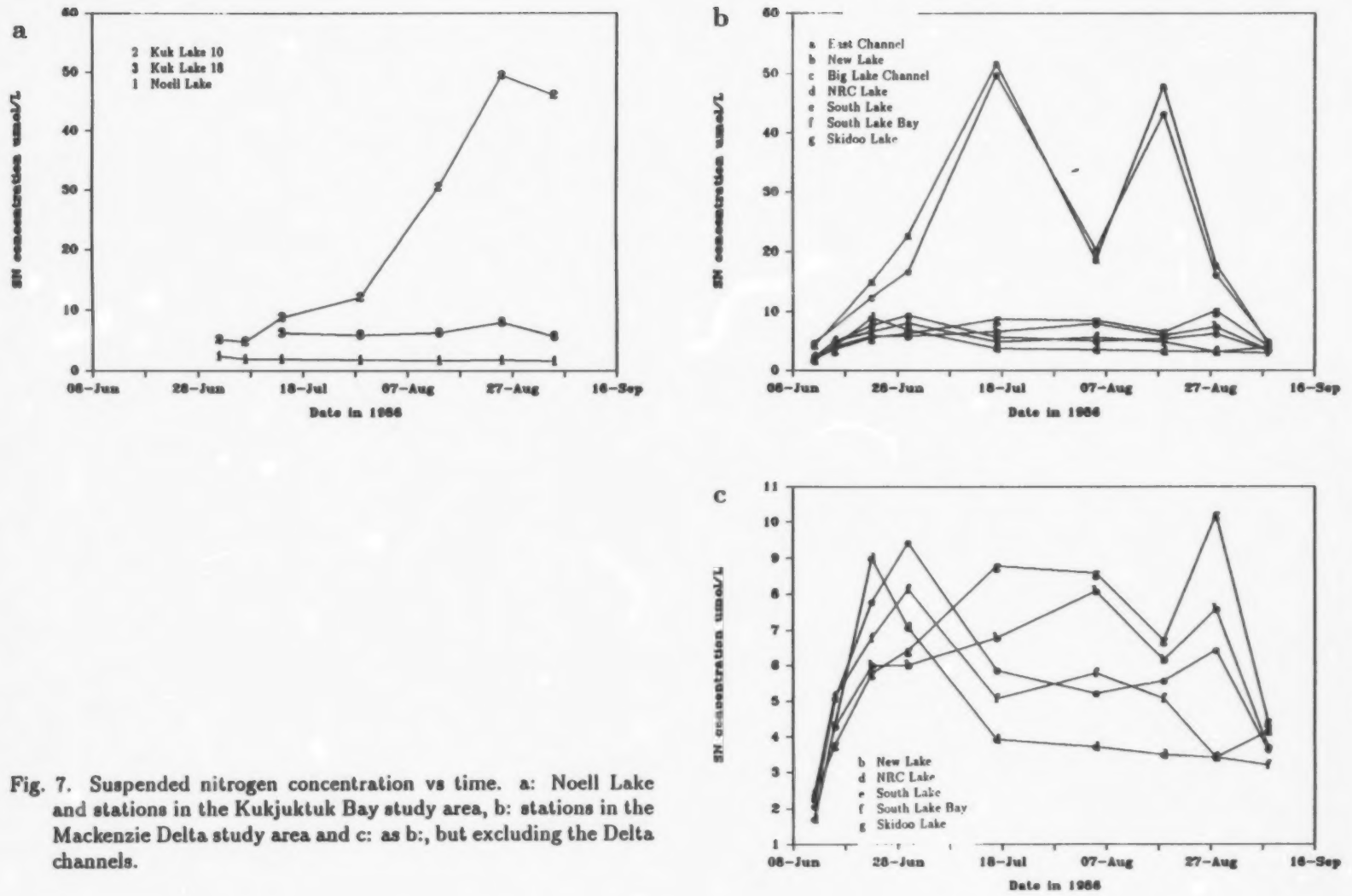


Fig. 7. Suspended nitrogen concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area, b: stations in the Mackenzie Delta study area and c: as b:, but excluding the Delta channels.

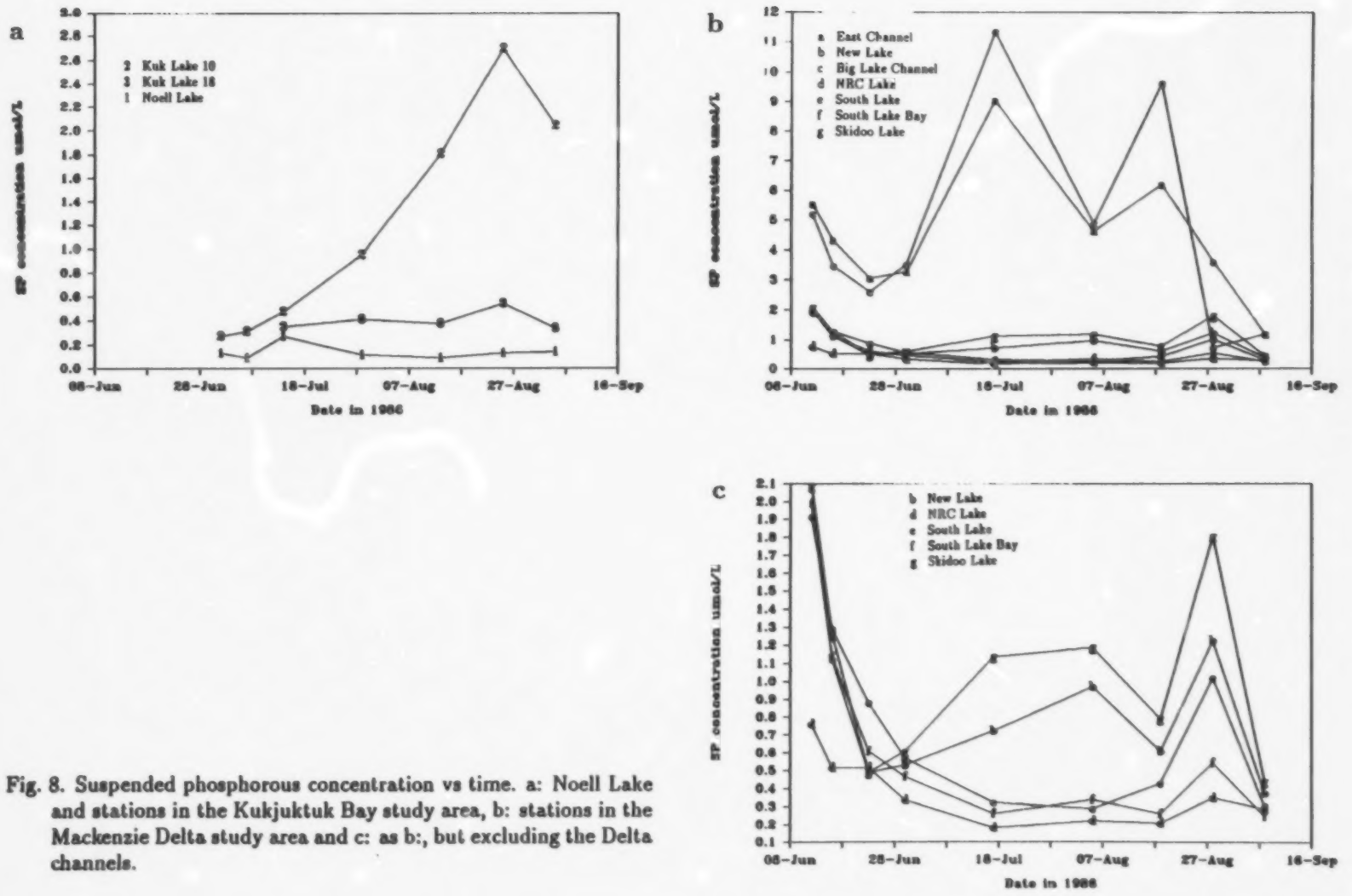
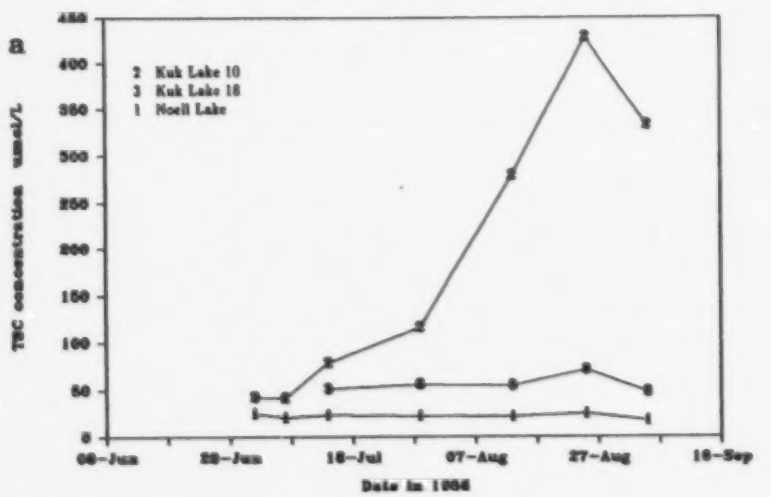
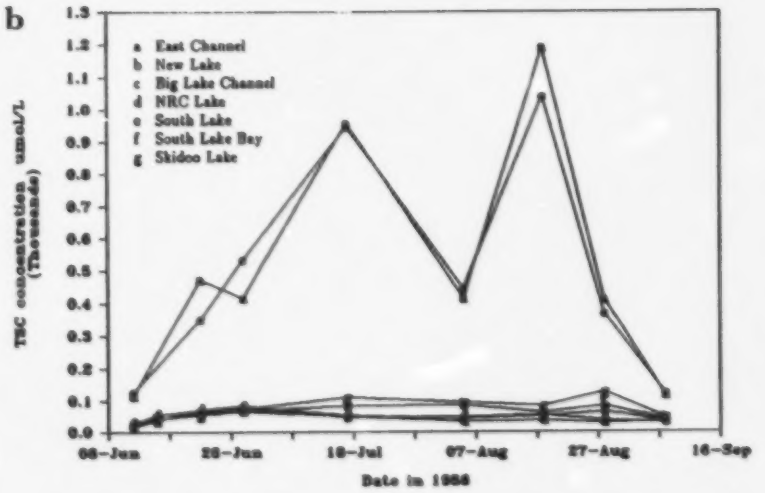


Fig. 8. Suspended phosphorous concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area, b: stations in the Mackenzie Delta study area and c: as b:, but excluding the Delta channels.





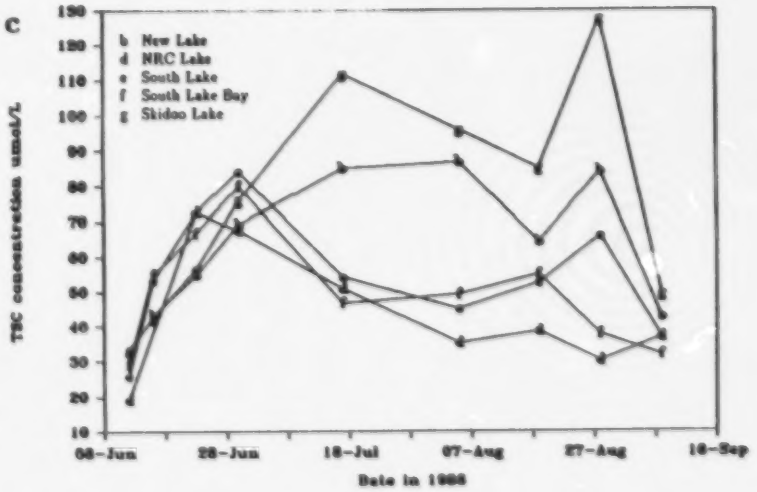


Fig. 9. Total suspended carbon concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area, b: stations in the Mackenzie Delta study area and c: as b:, but excluding the Delta channels.

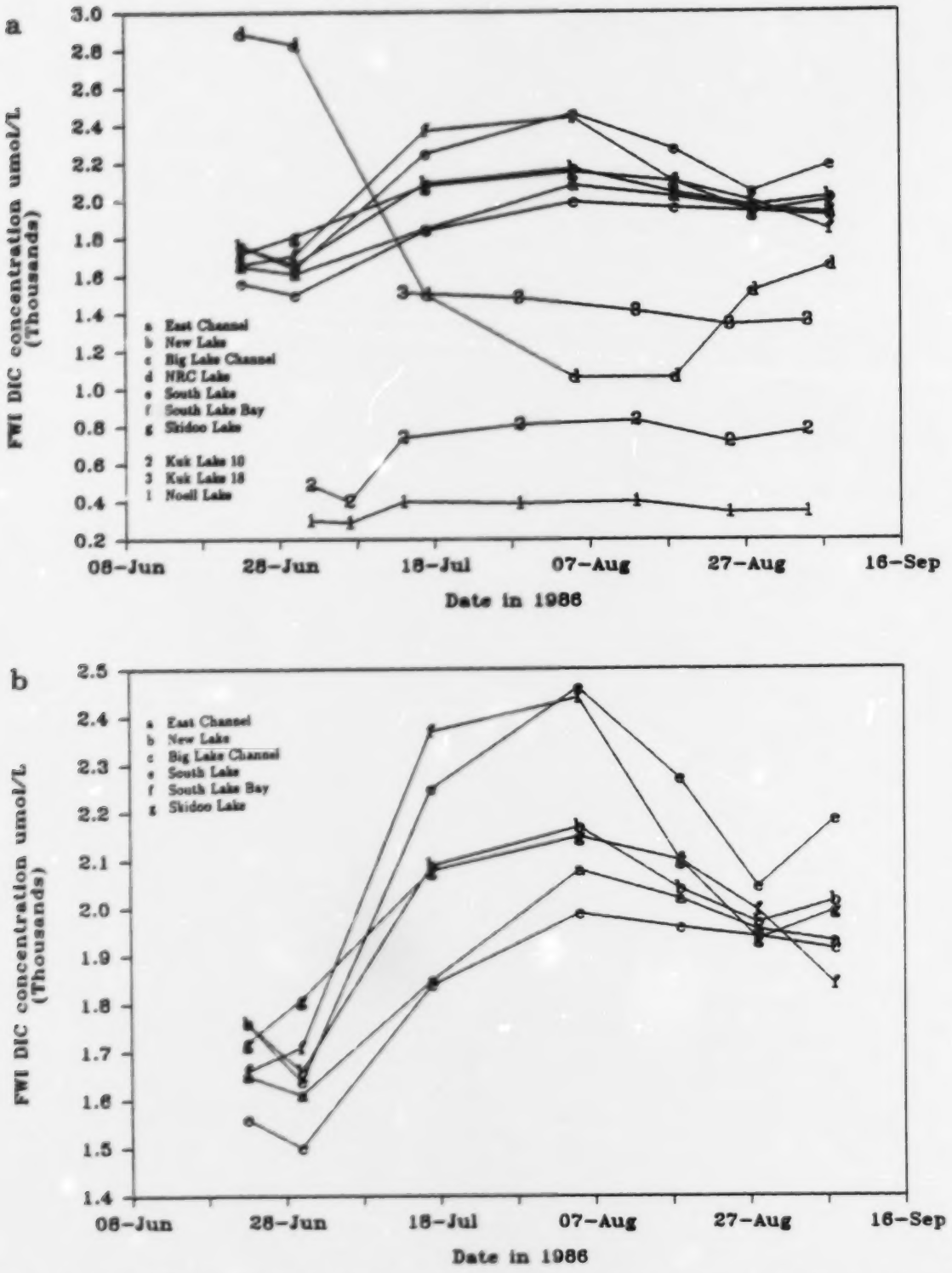


Fig. 10. FWI dissolved inorganic carbon concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: stations in the Mackenzie Delta study area, NRC Lake excepted.

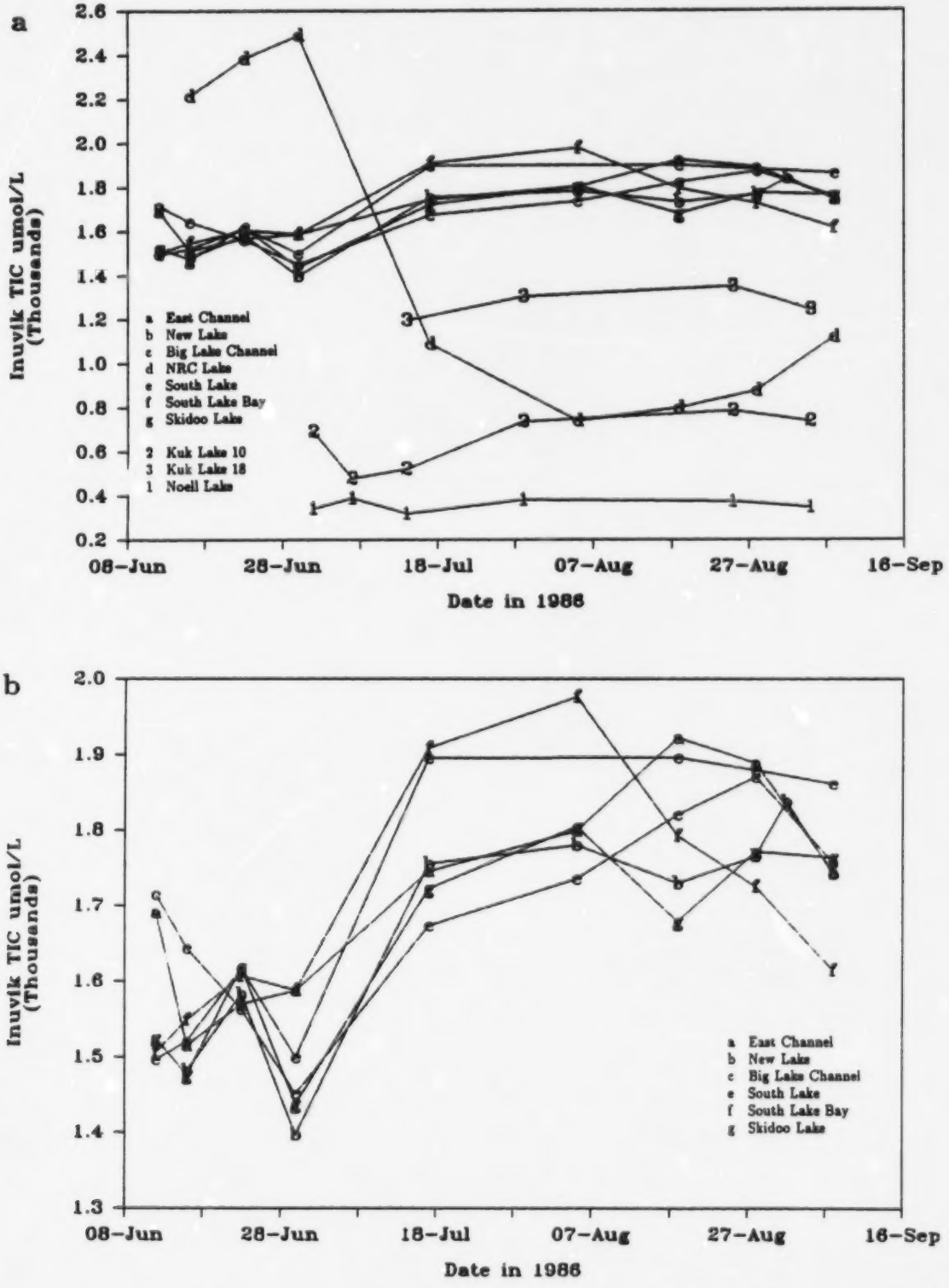


Fig. 11. Inuvik total inorganic carbon concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: stations in the Mackenzie Delta study area, NRC Lake excepted.

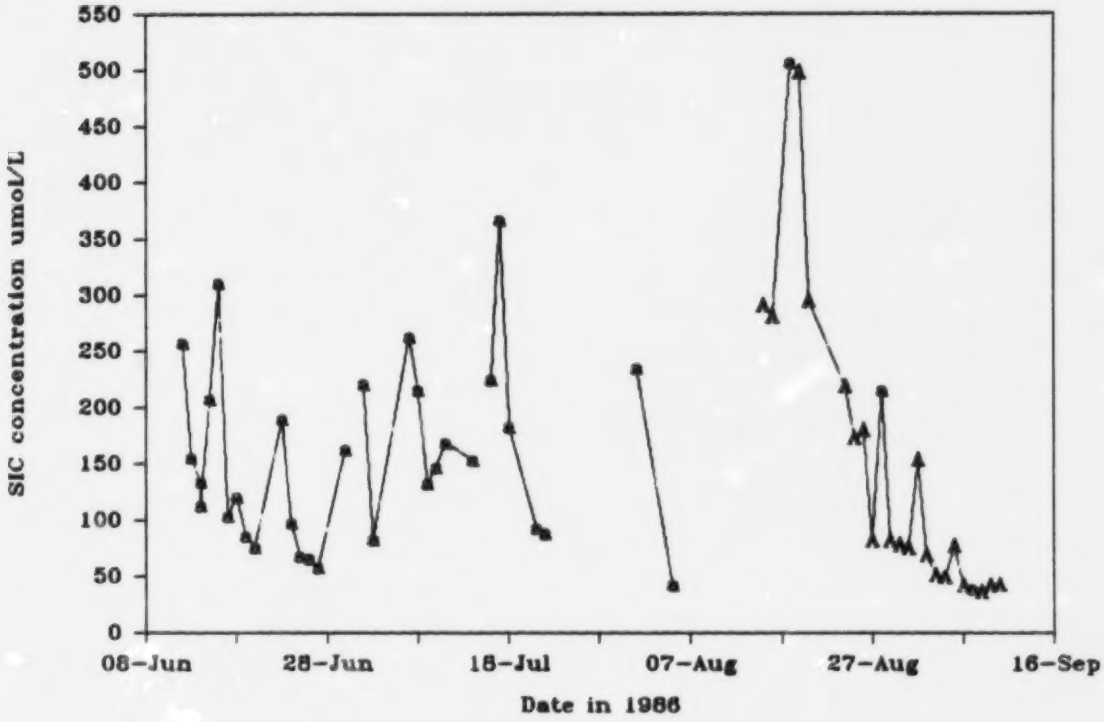


Fig. 12. Suspended inorganic carbon concentration vs time; East Channel. Upper case letters refer to samples that were filtered with filters prepared at the Inuvik laboratory.

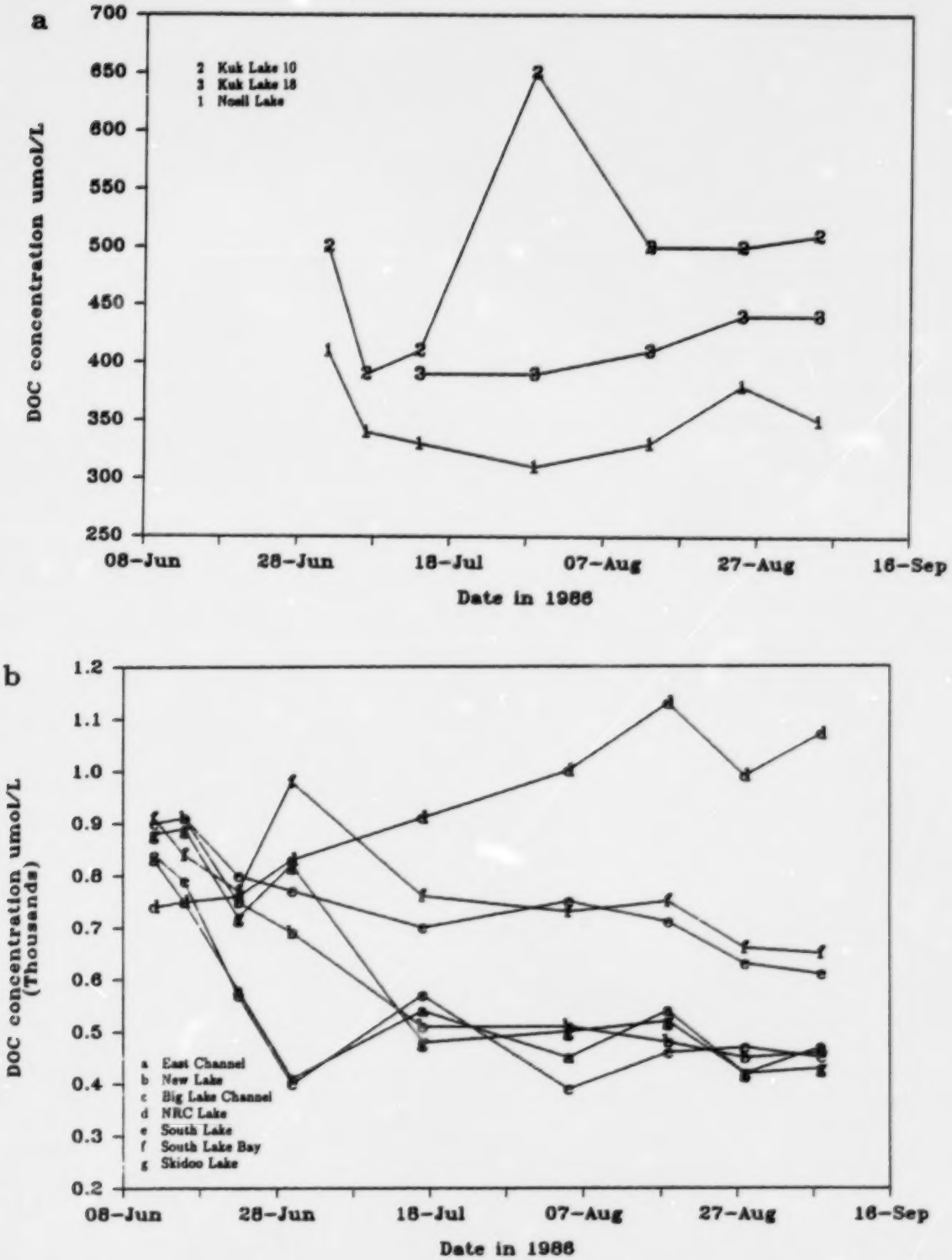


Fig. 13. Dissolved organic carbon concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area and b: stations in the Mackenzie Delta study area.

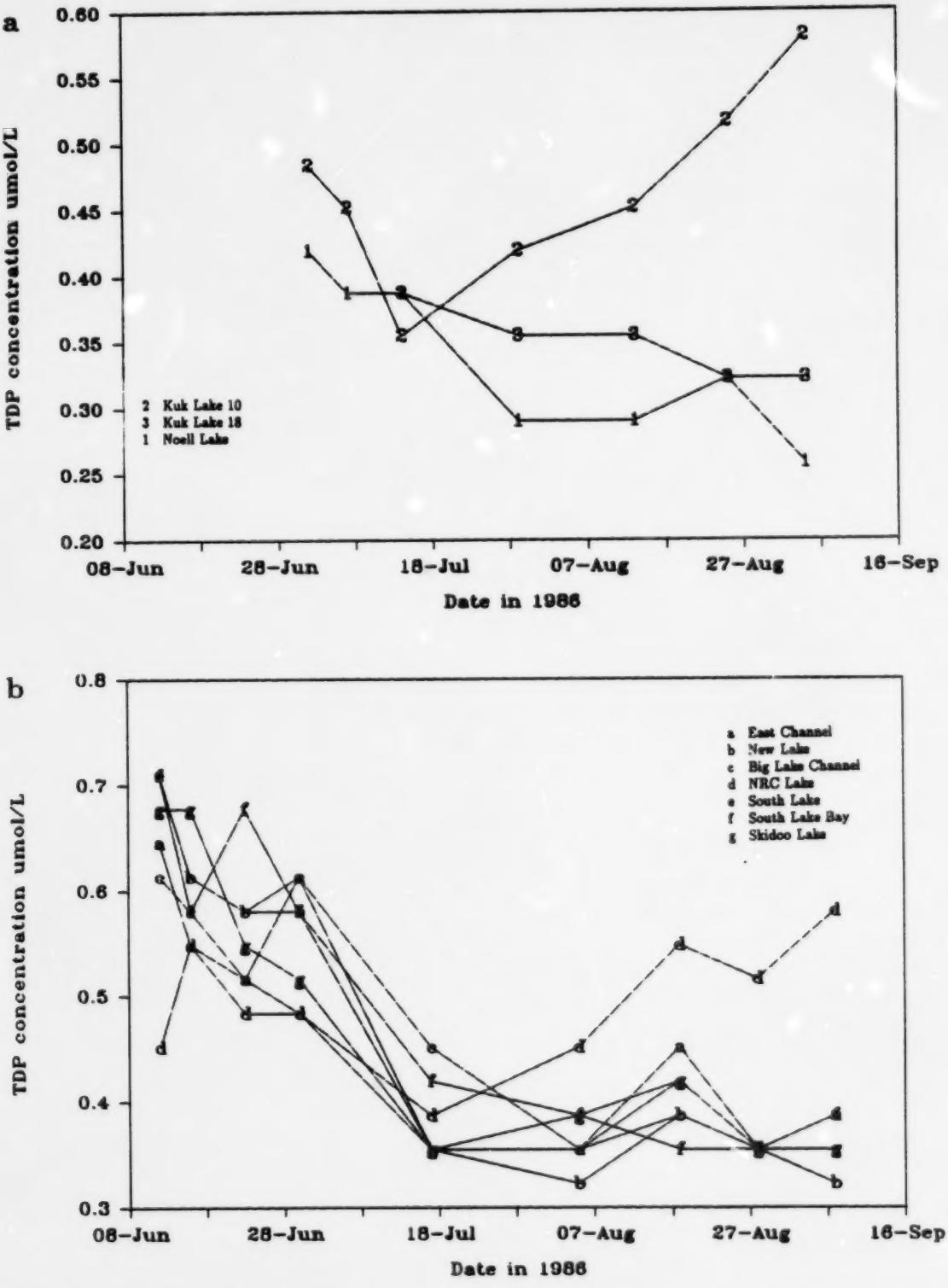


Fig. 14. Total dissolved phosphorous concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area and b: stations in the Mackenzie Delta study area.

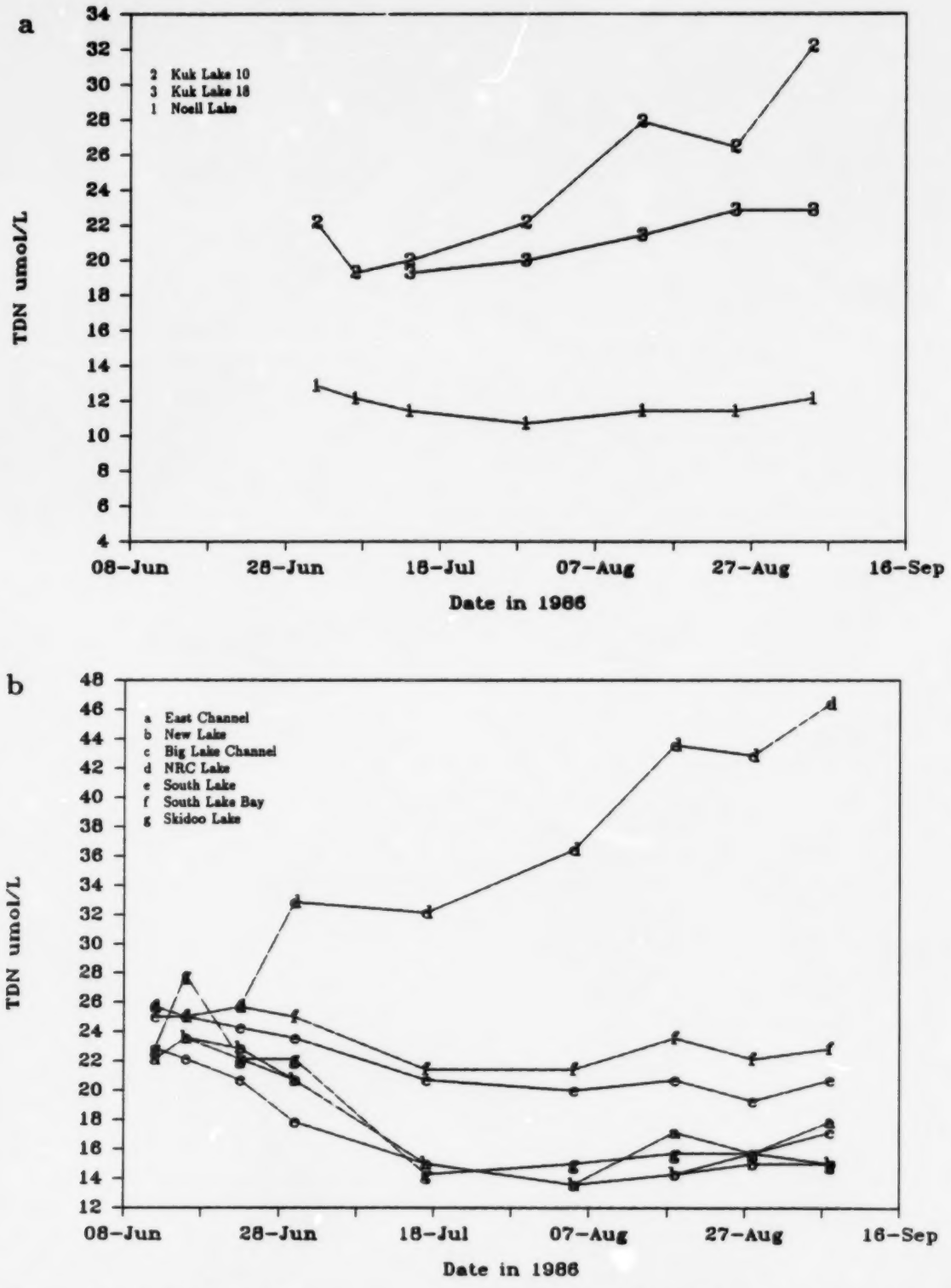


Fig. 15. Total dissolved nitrogen concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area and b: stations in the Mackenzie Delta study area.

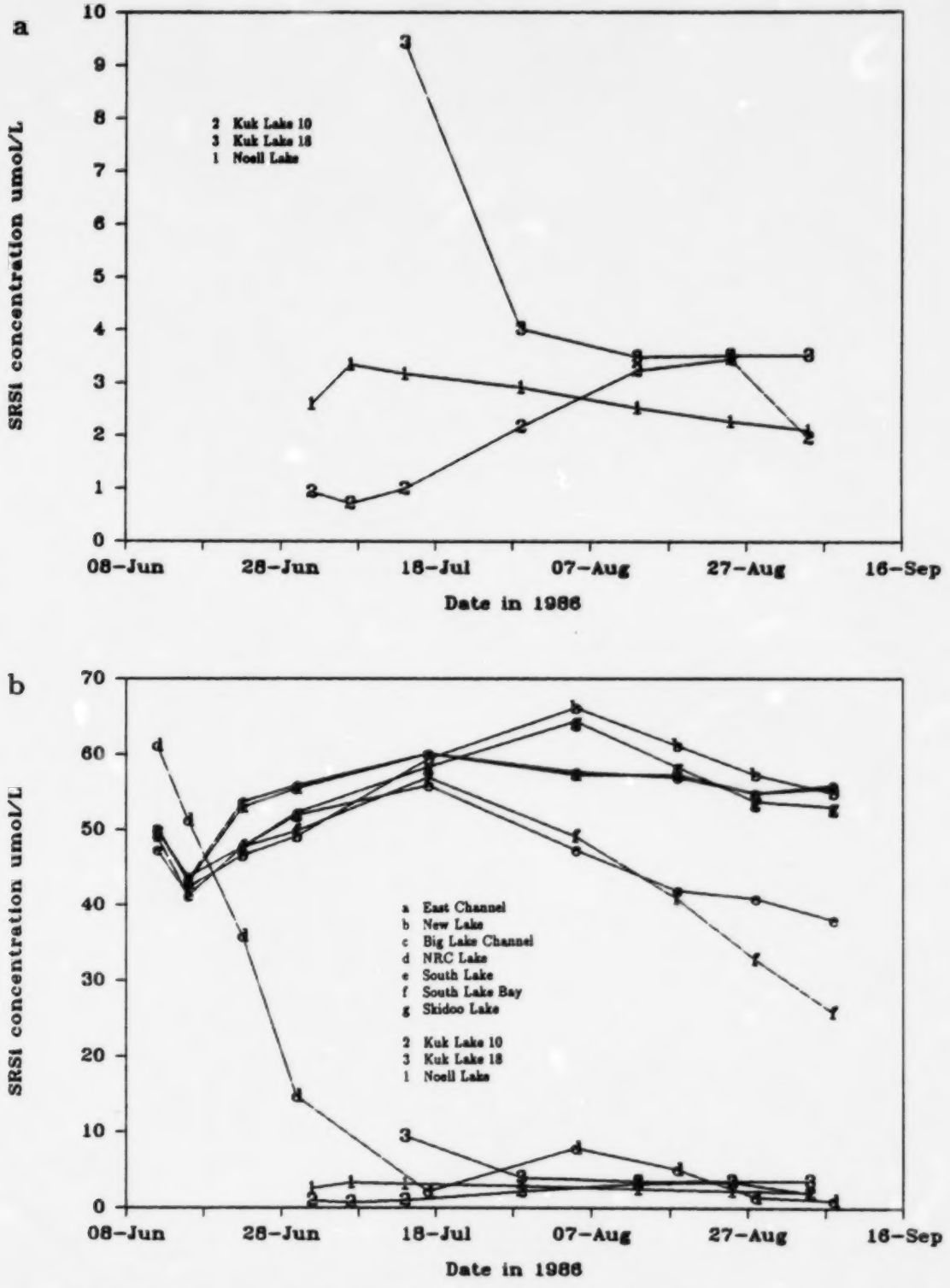


Fig. 16. Soluble reactive silica concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area and b: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas.

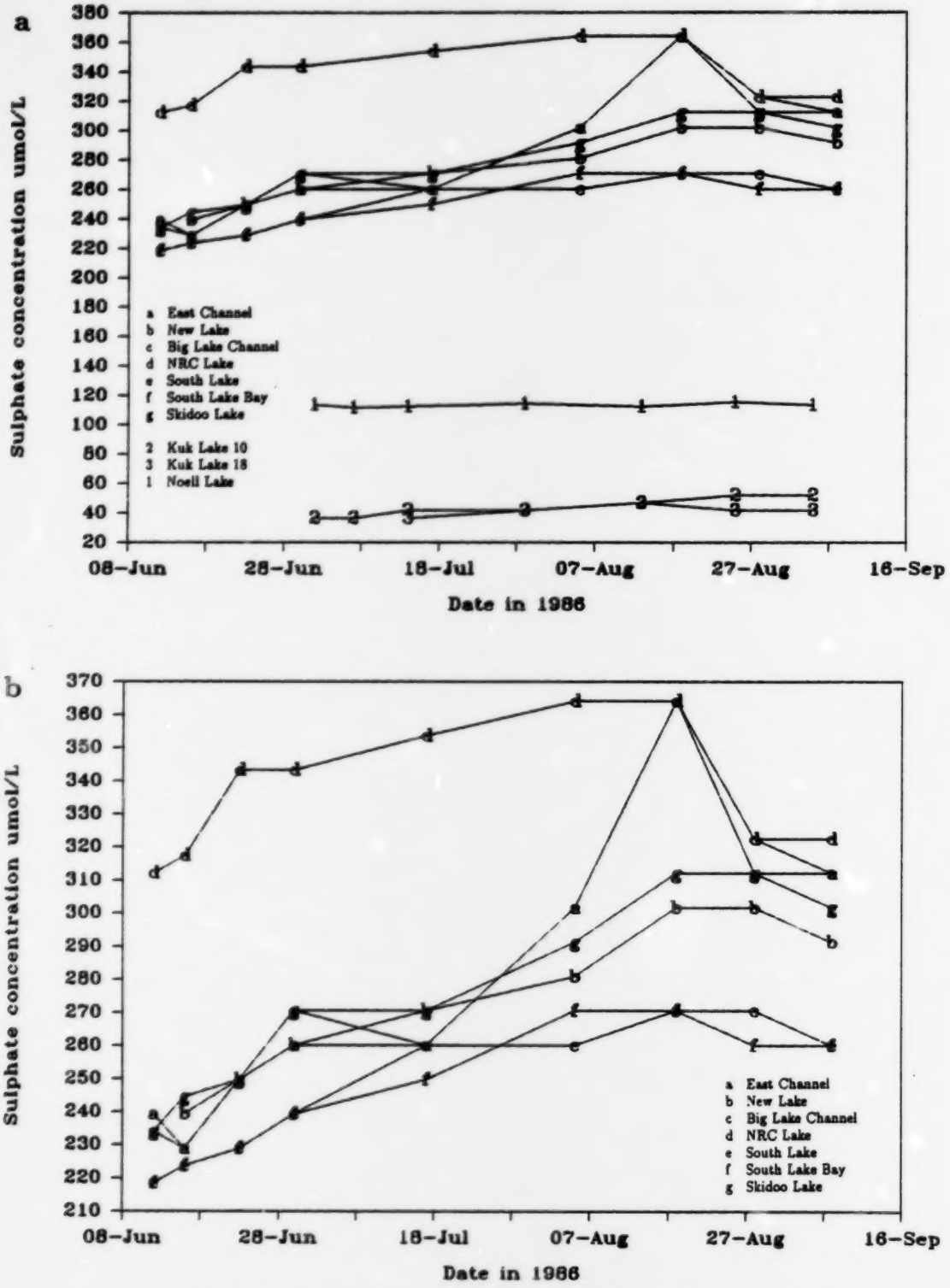


Fig. 17. Sulphate concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: stations in the Mackenzie Delta study area.

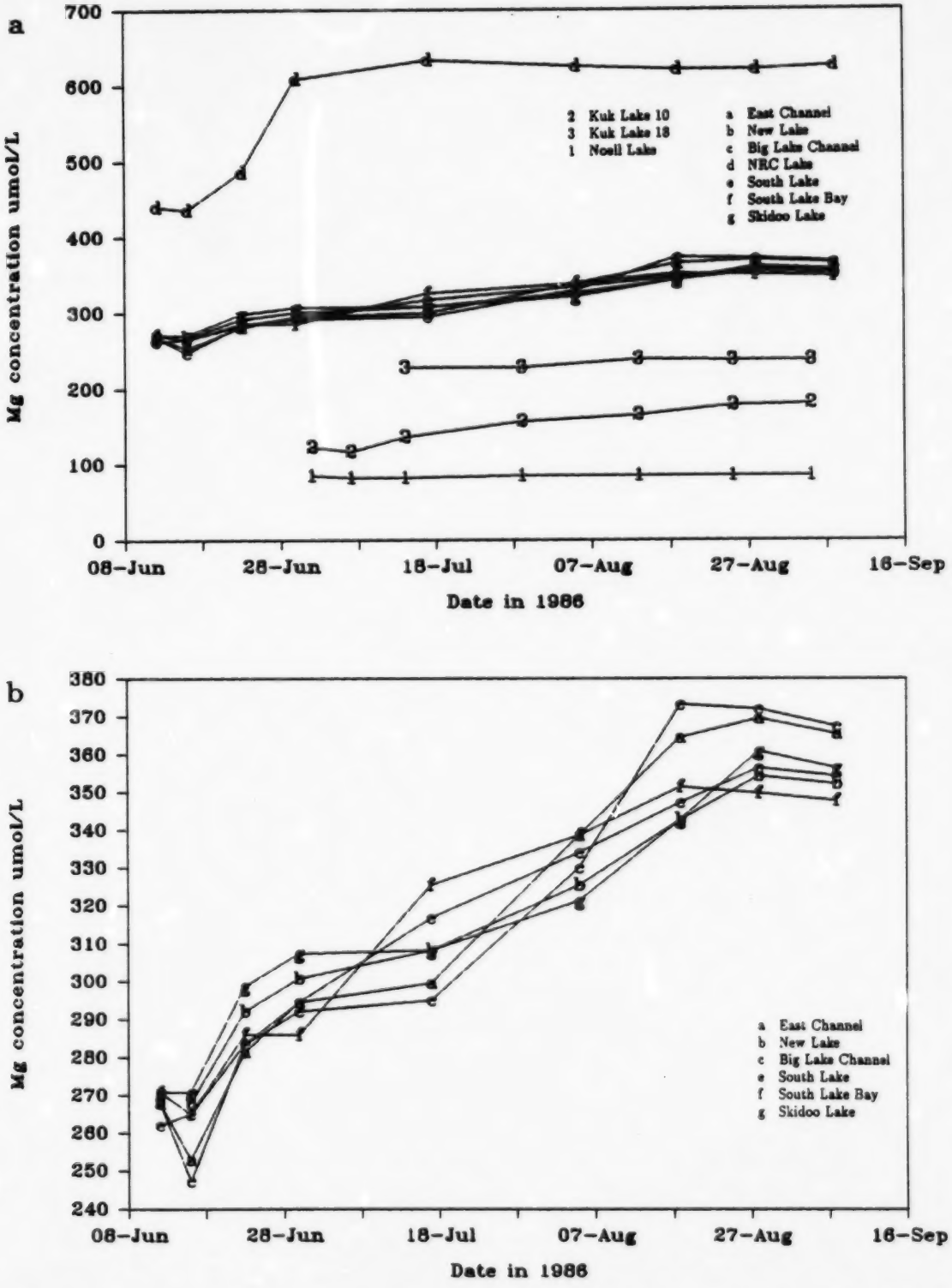


Fig. 18. Magnesium concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: stations in the Mackenzie Delta study area.

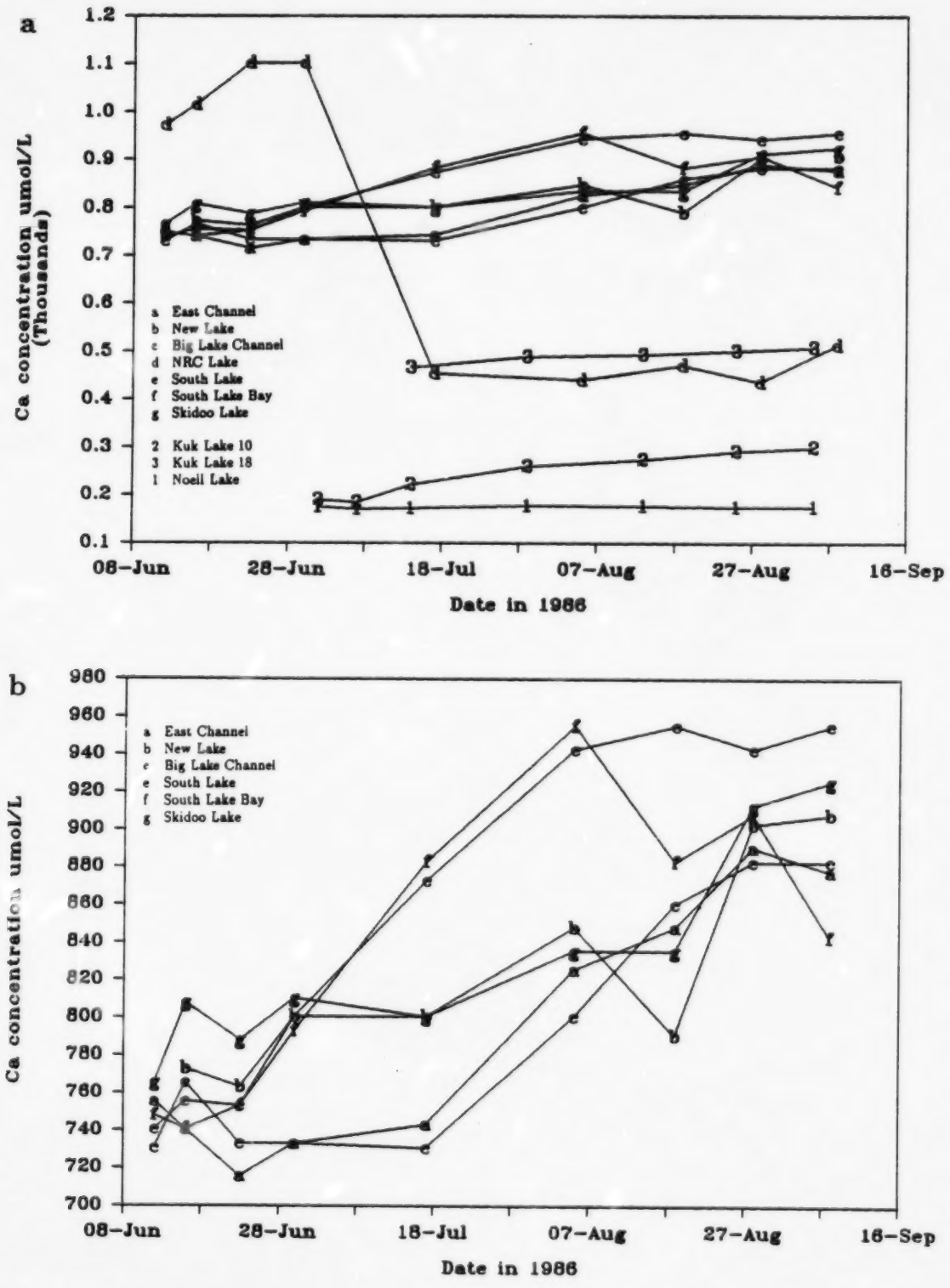


Fig. 19. Calcium concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: stations in the Mackenzie Delta study area, NRC Lake excepted.

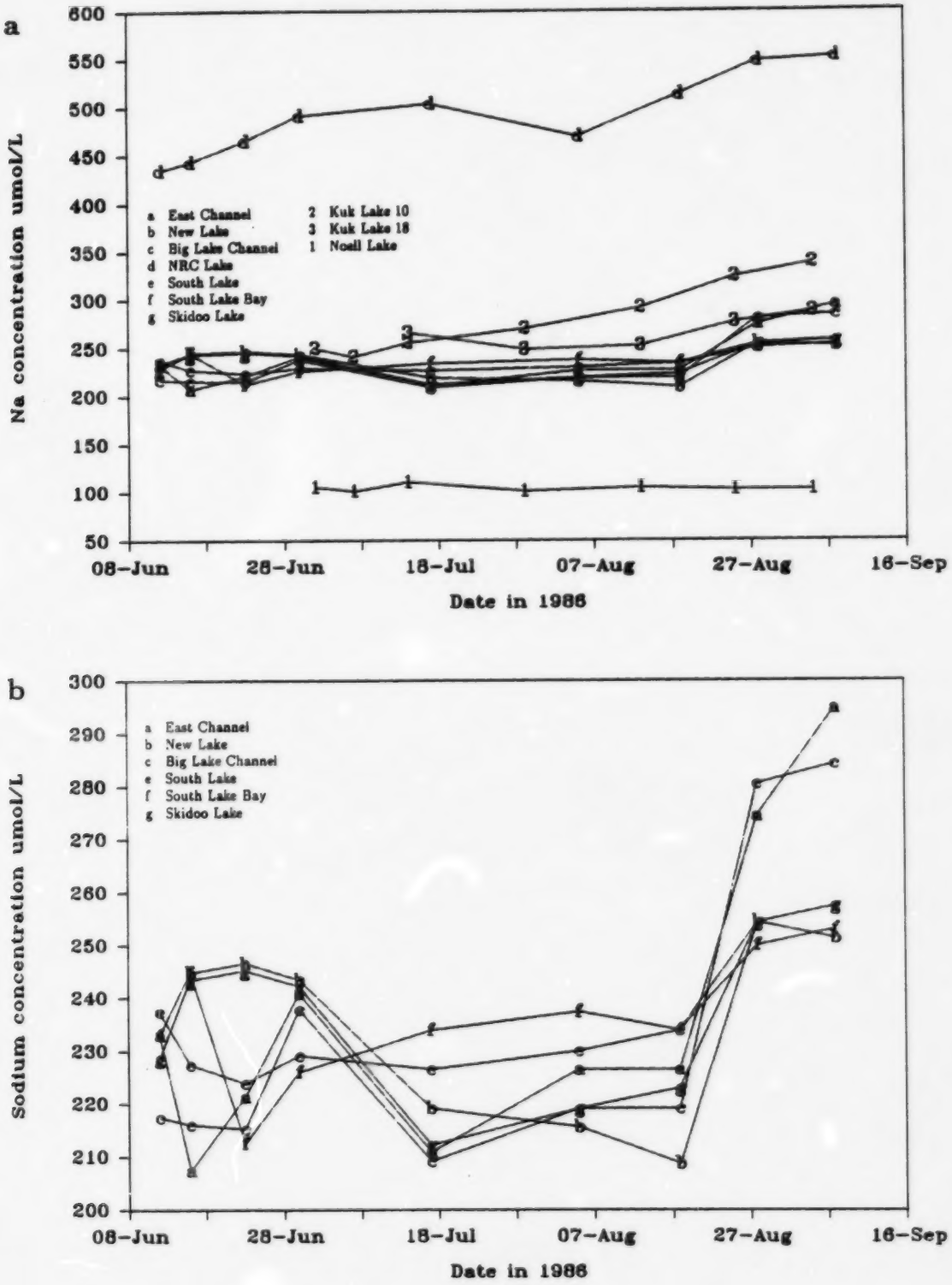


Fig. 20. Sodium concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: stations in the Mackenzie Delta study area, NRC Lake excepted.

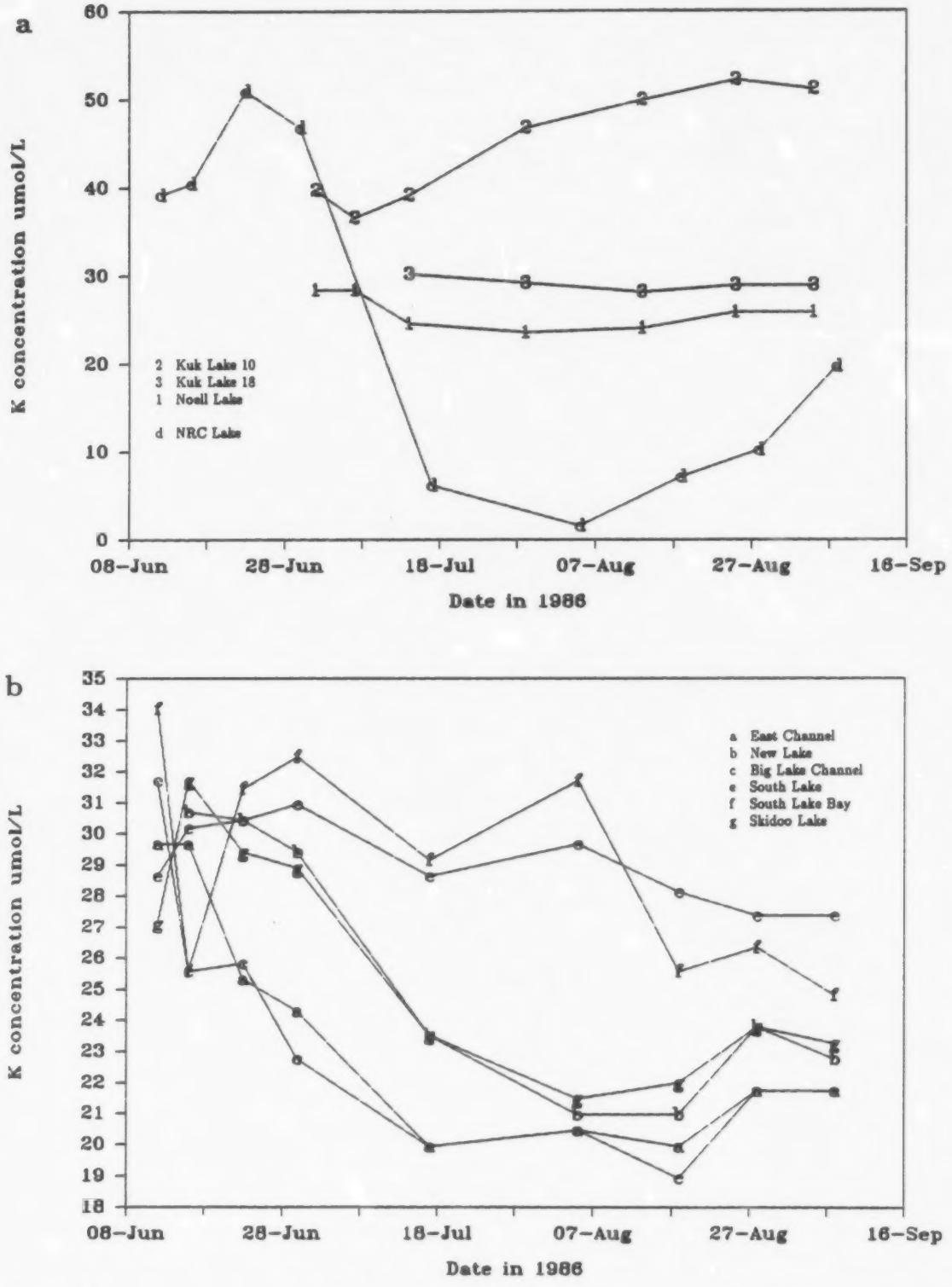


Fig. 21. Potassium concentration vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area and b: stations in the Mackenzie Delta study area, NRC Lake excepted.

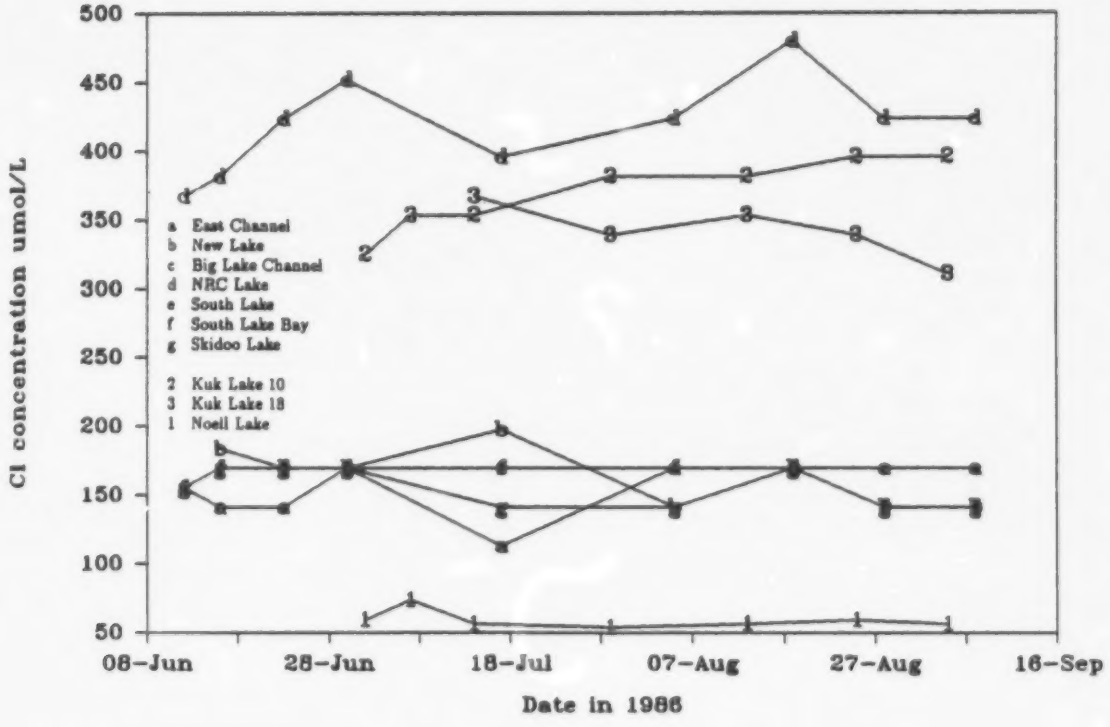


Fig. 22. Chloride concentration vs time. Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas.

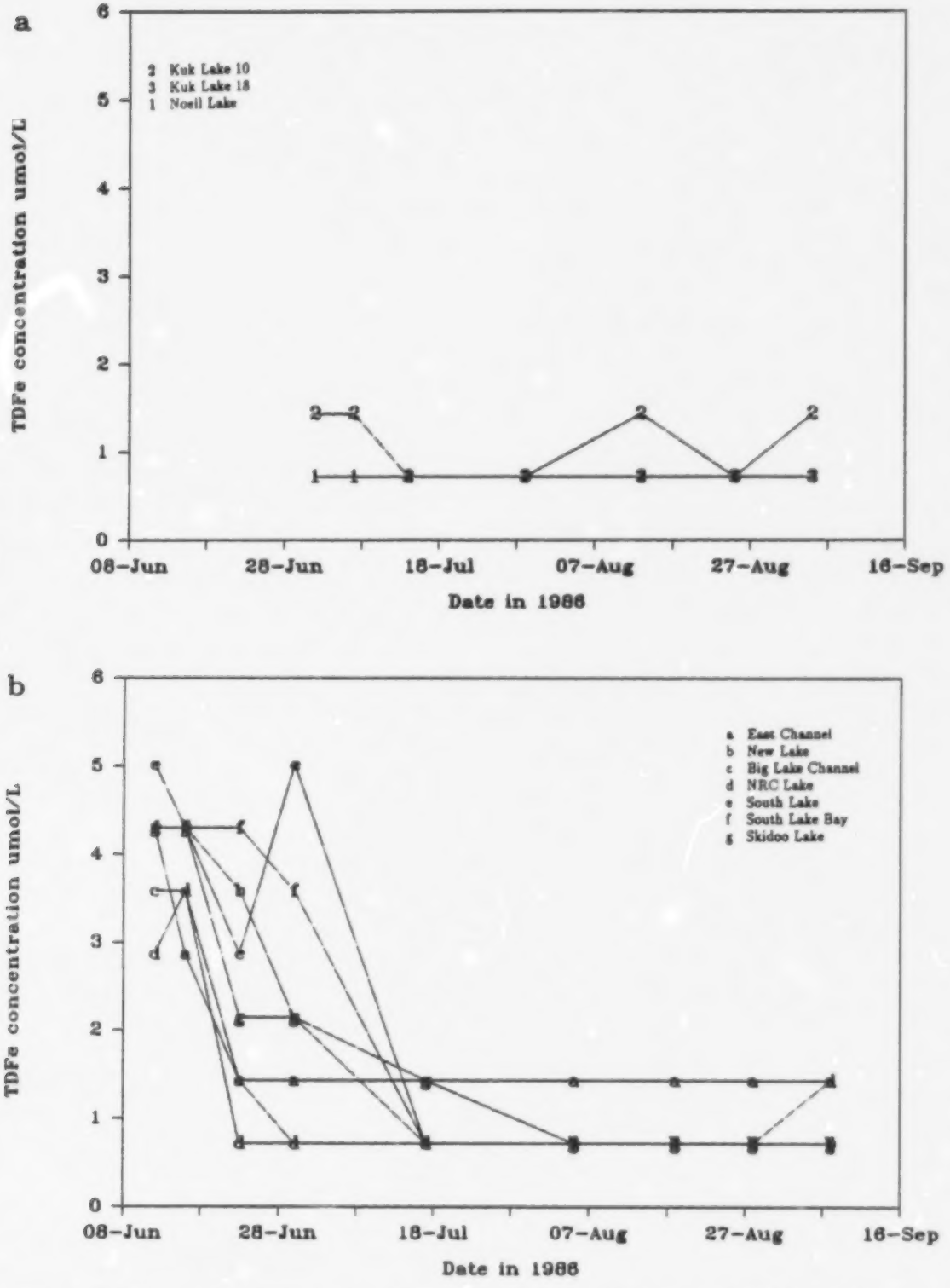


Fig. 23. Total dissolved iron vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area and b: stations in the Mackenzie Delta study area.

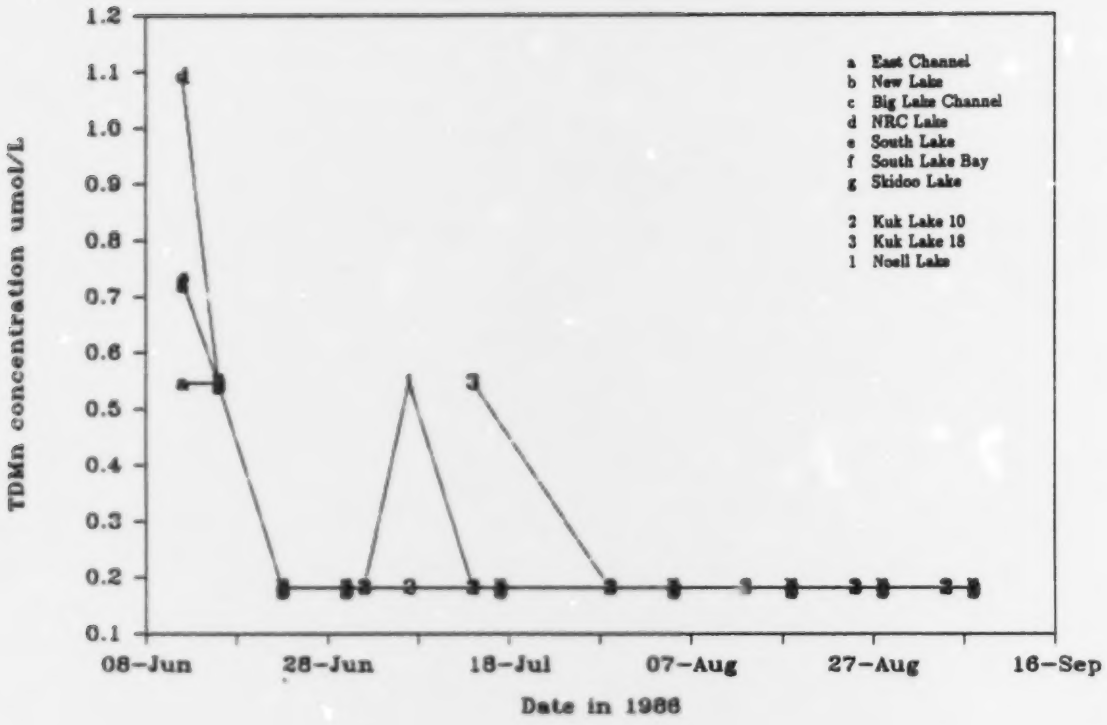


Fig. 24. Total dissolved manganese vs time. Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas.

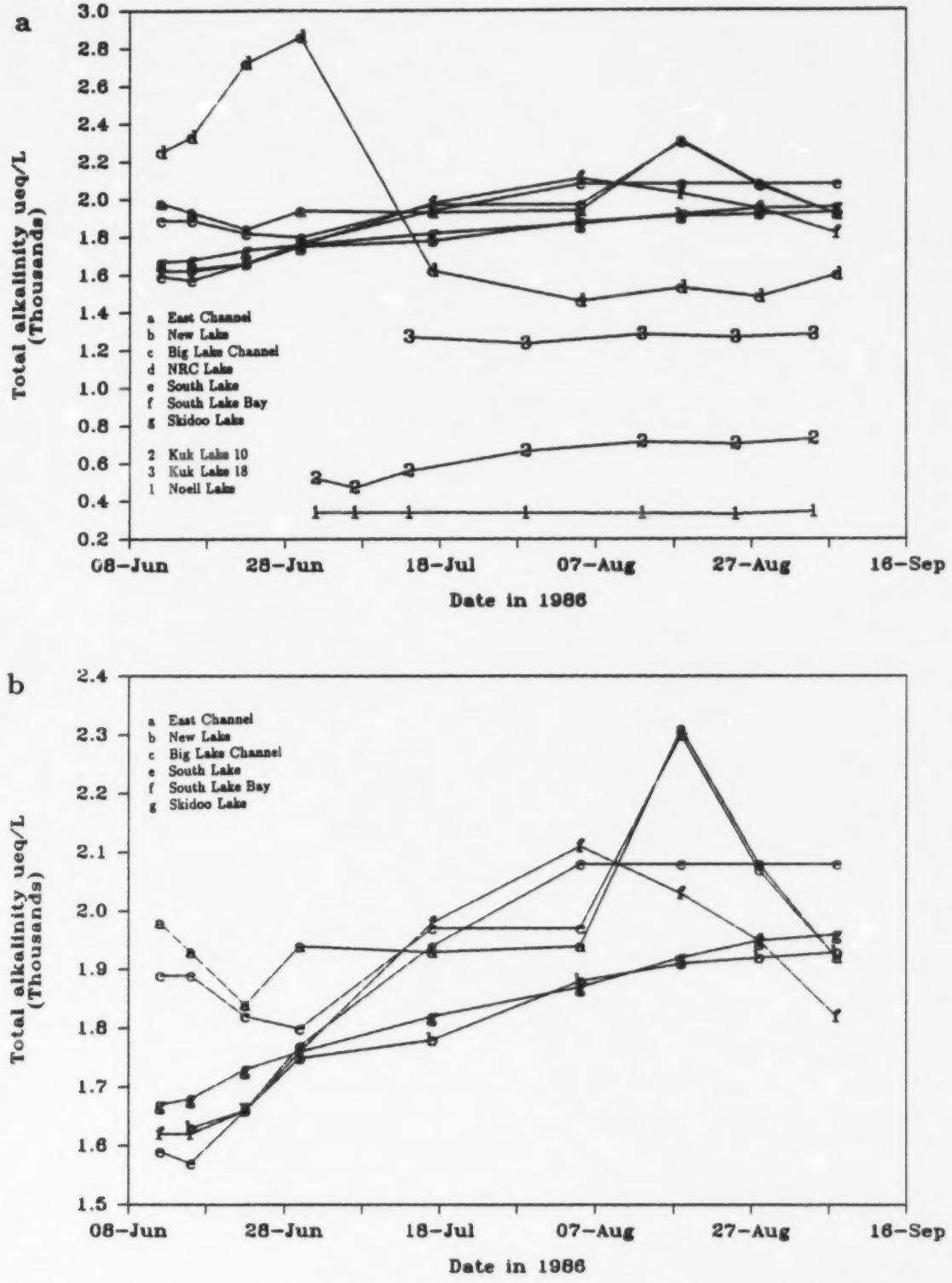


Fig. 25. Total alkalinity vs time. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: stations in the Mackenzie Delta study area, NRC Lake excepted.

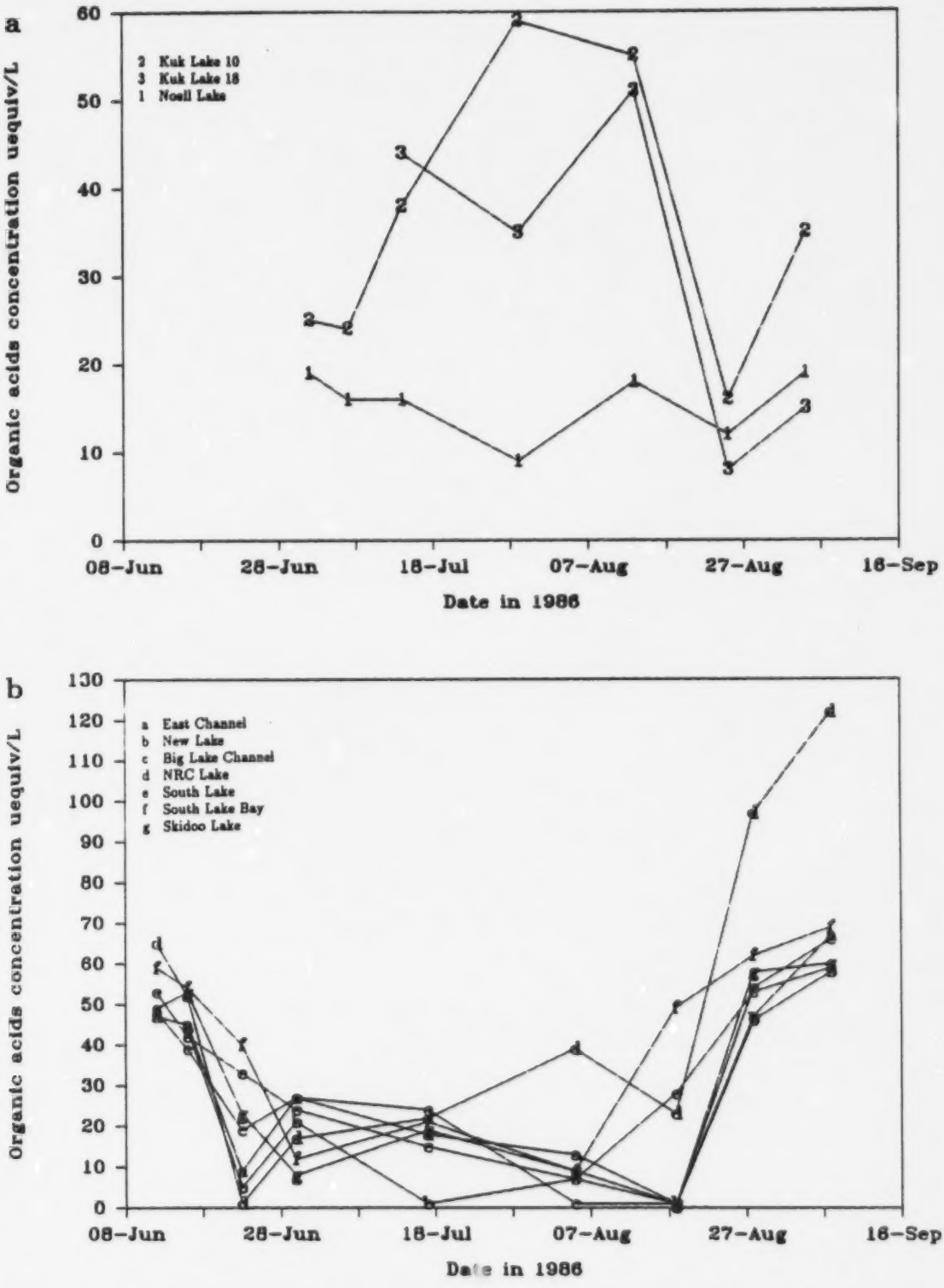


Fig. 26. Organic acids vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area and b: stations in the Mackenzie Delta study area.

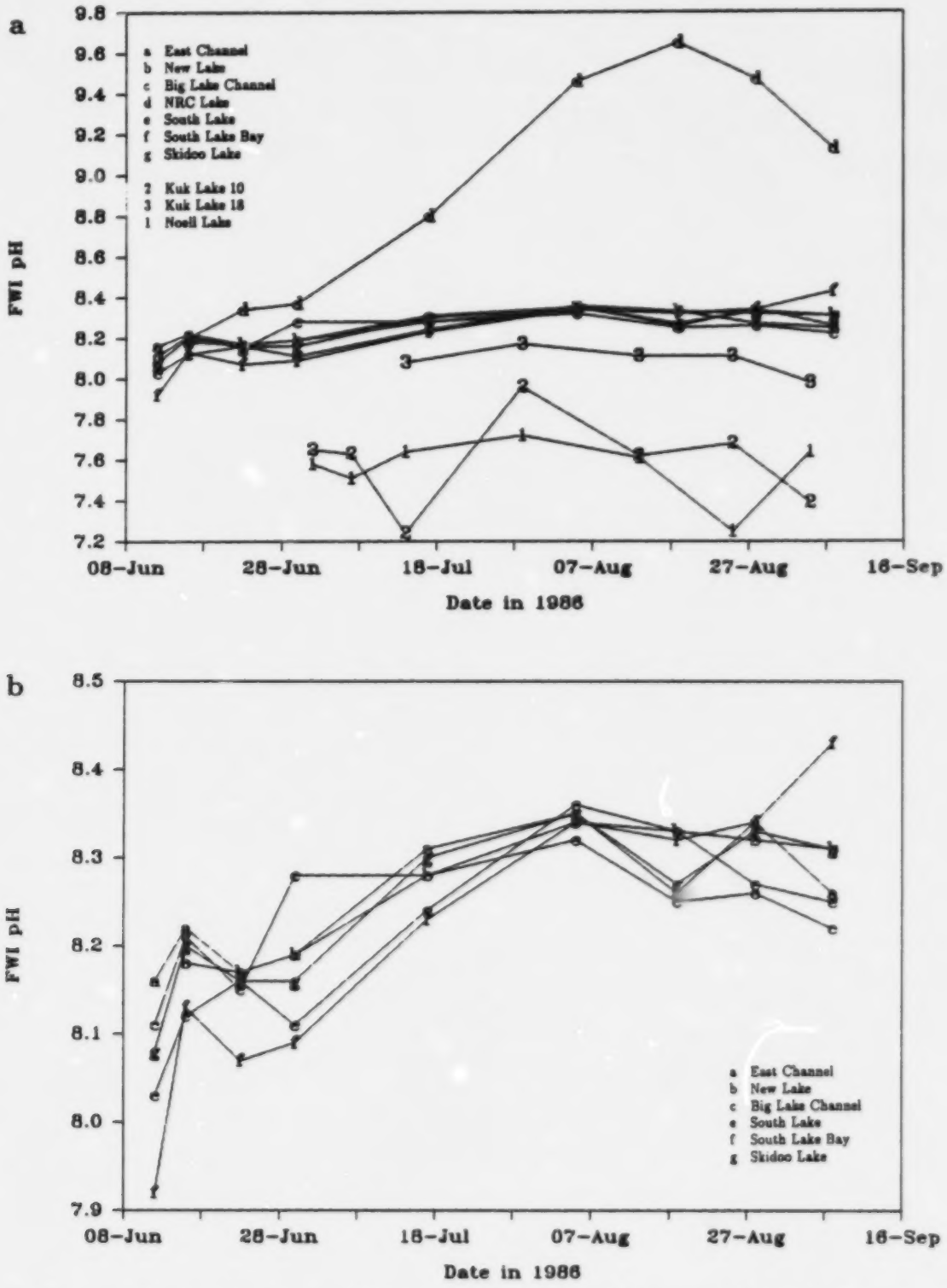


Fig. 27. FWI pH vs time. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas, and b: stations in the Mackenzie Delta study area, NRC Lake excepted.

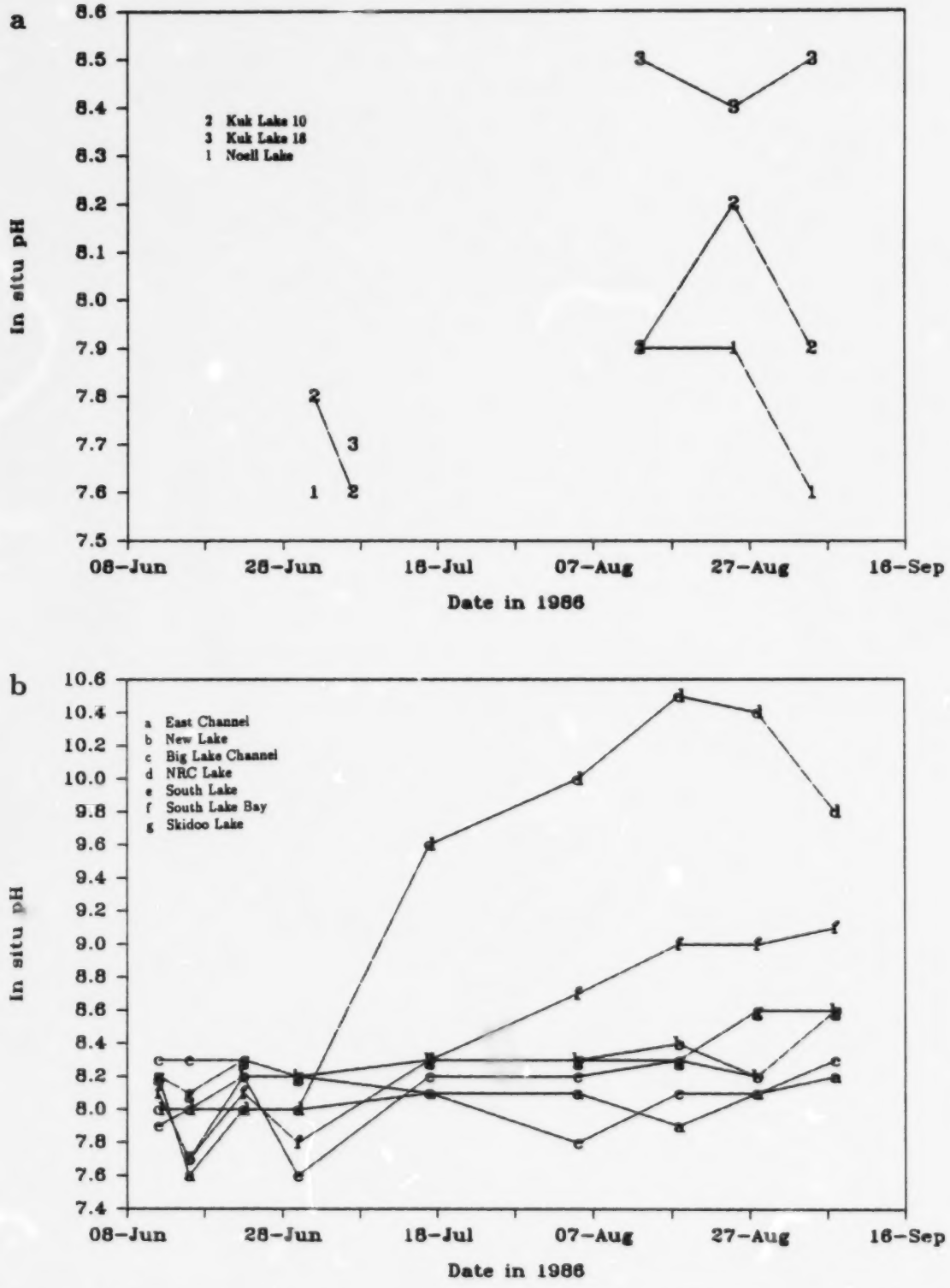


Fig. 28. *In situ* pH vs time. a: Noell Lake and stations in the Kukjuktuk Bay study area b: stations in the Mackenzie Delta study area.

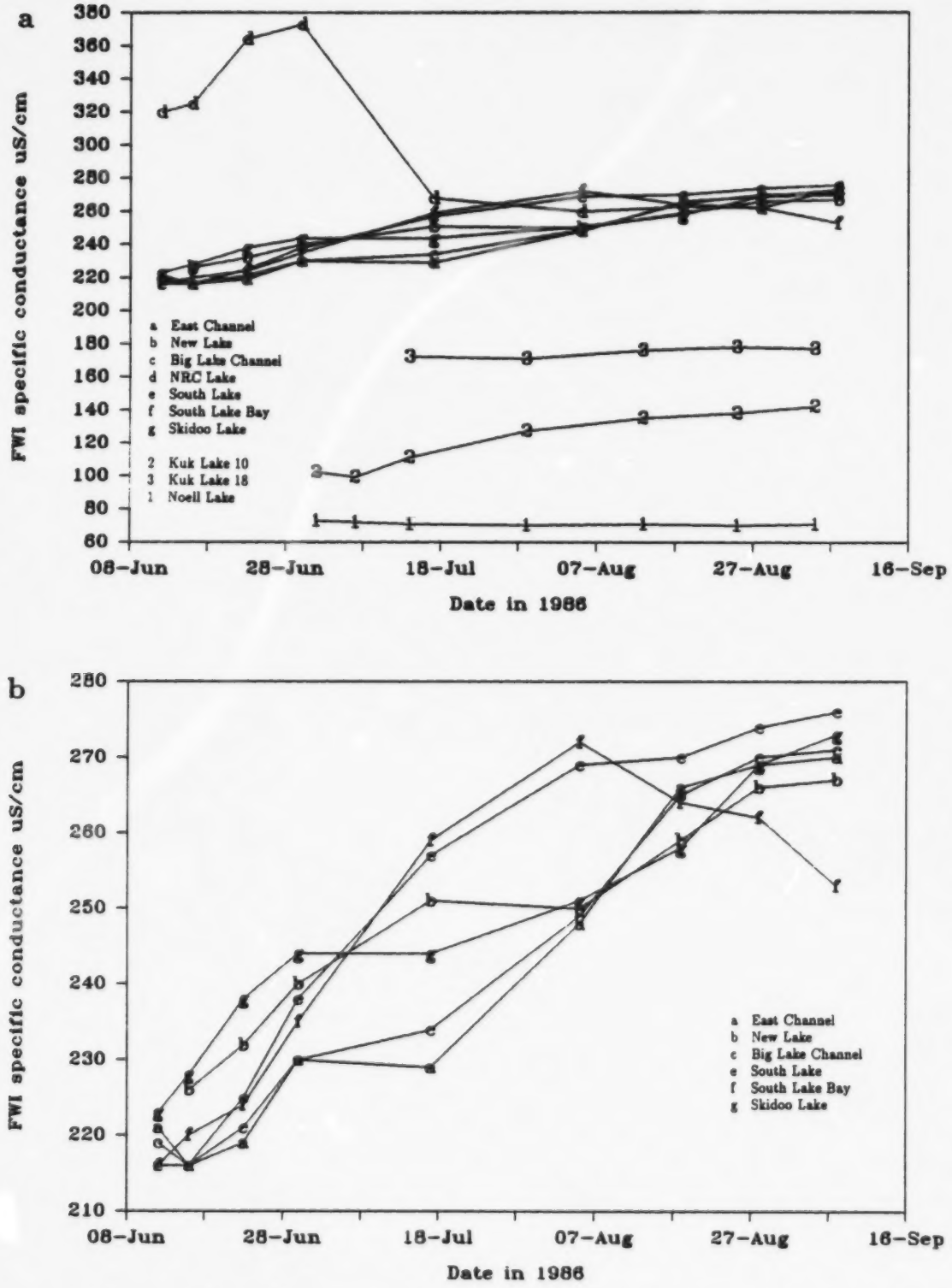


Fig. 29. FWI specific conductance vs time. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: stations in the Mackenzie Delta study area, NRC Lake excepted.

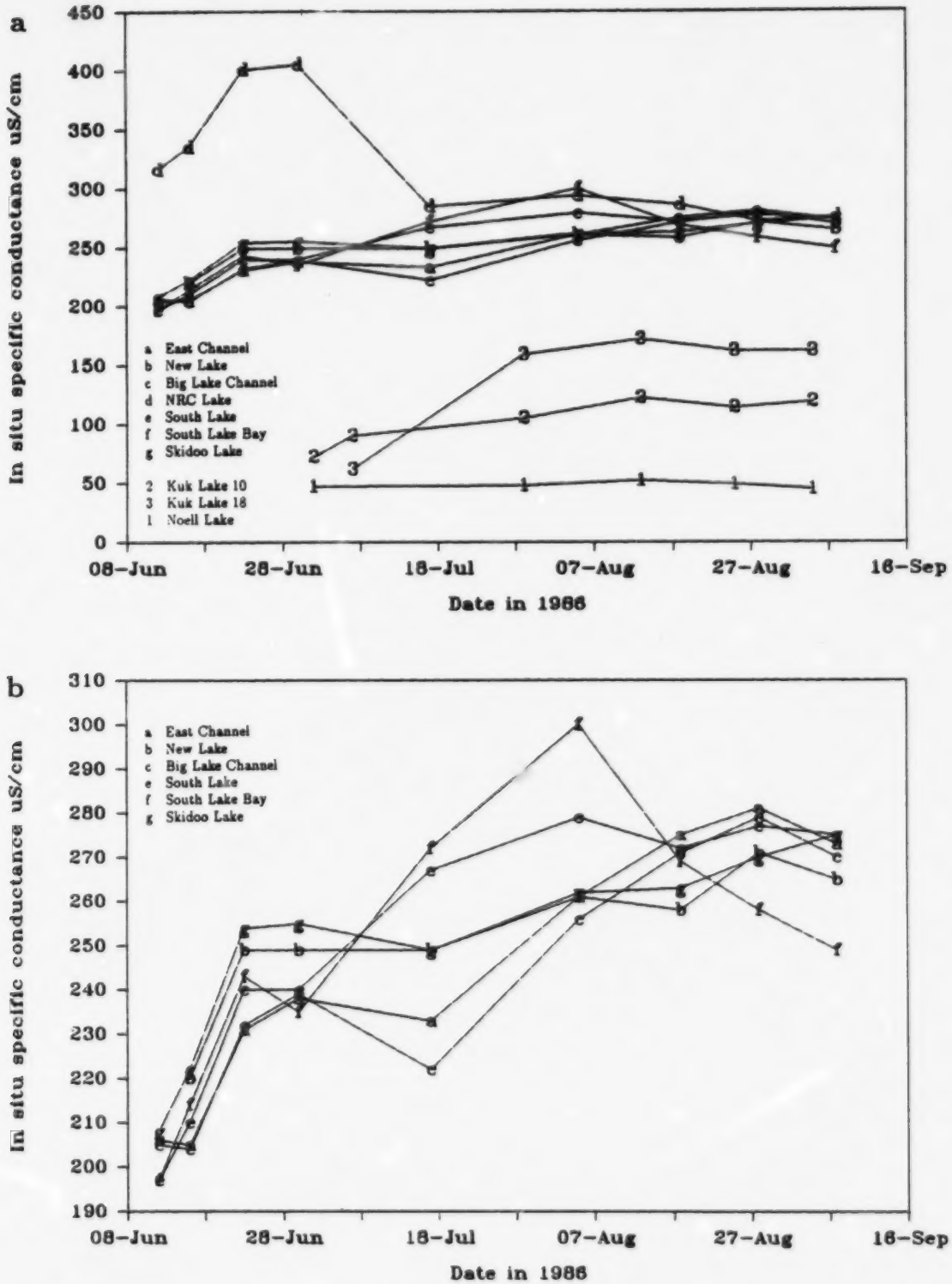


Fig. 30. *In situ* specific conductance vs time. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: stations in the Mackenzie Delta study area, NRC Lake excepted.

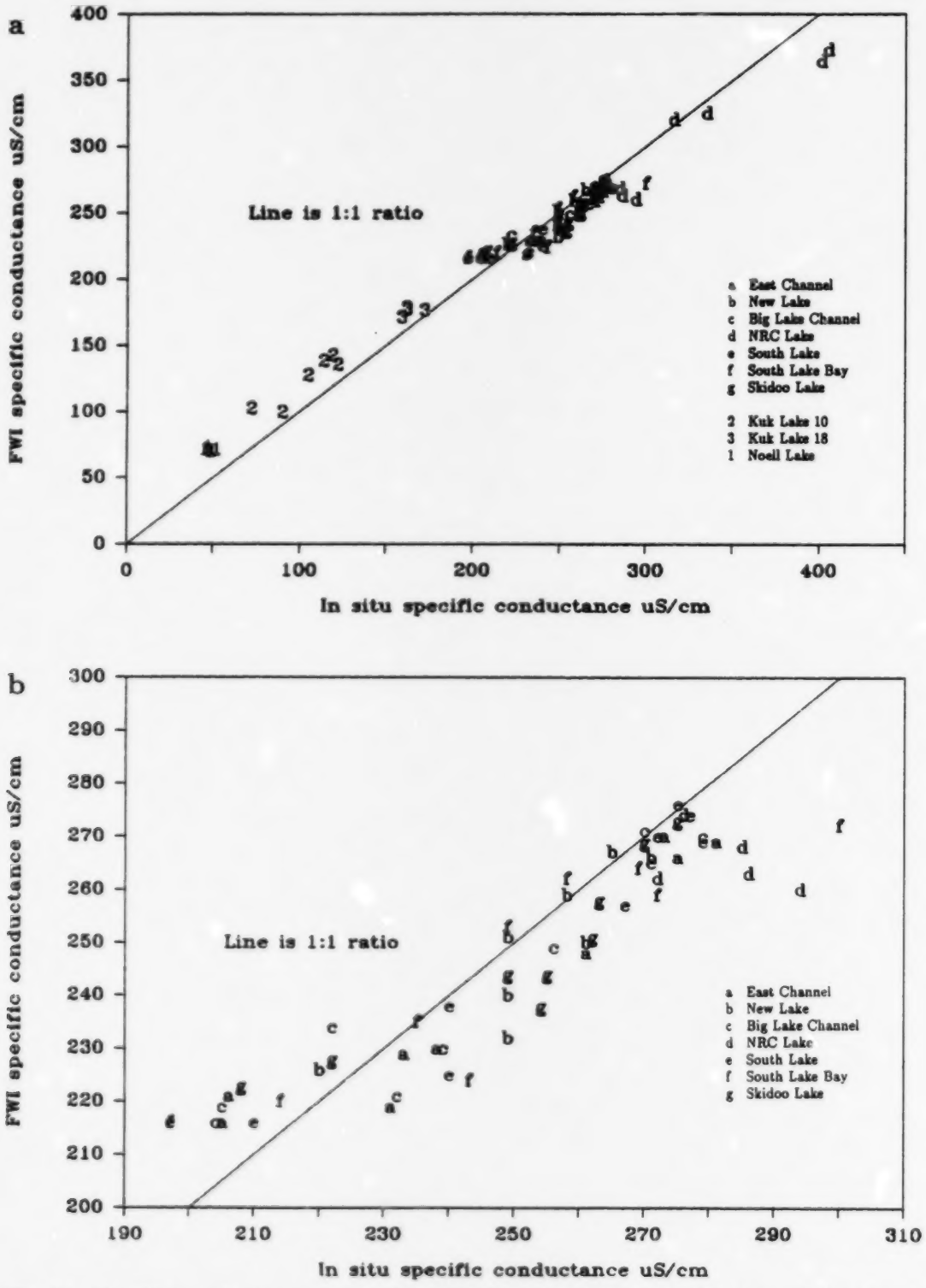


Fig. 31. Specific conductance comparison; FWI vs *in situ*. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: stations in the Mackenzie Delta study area.

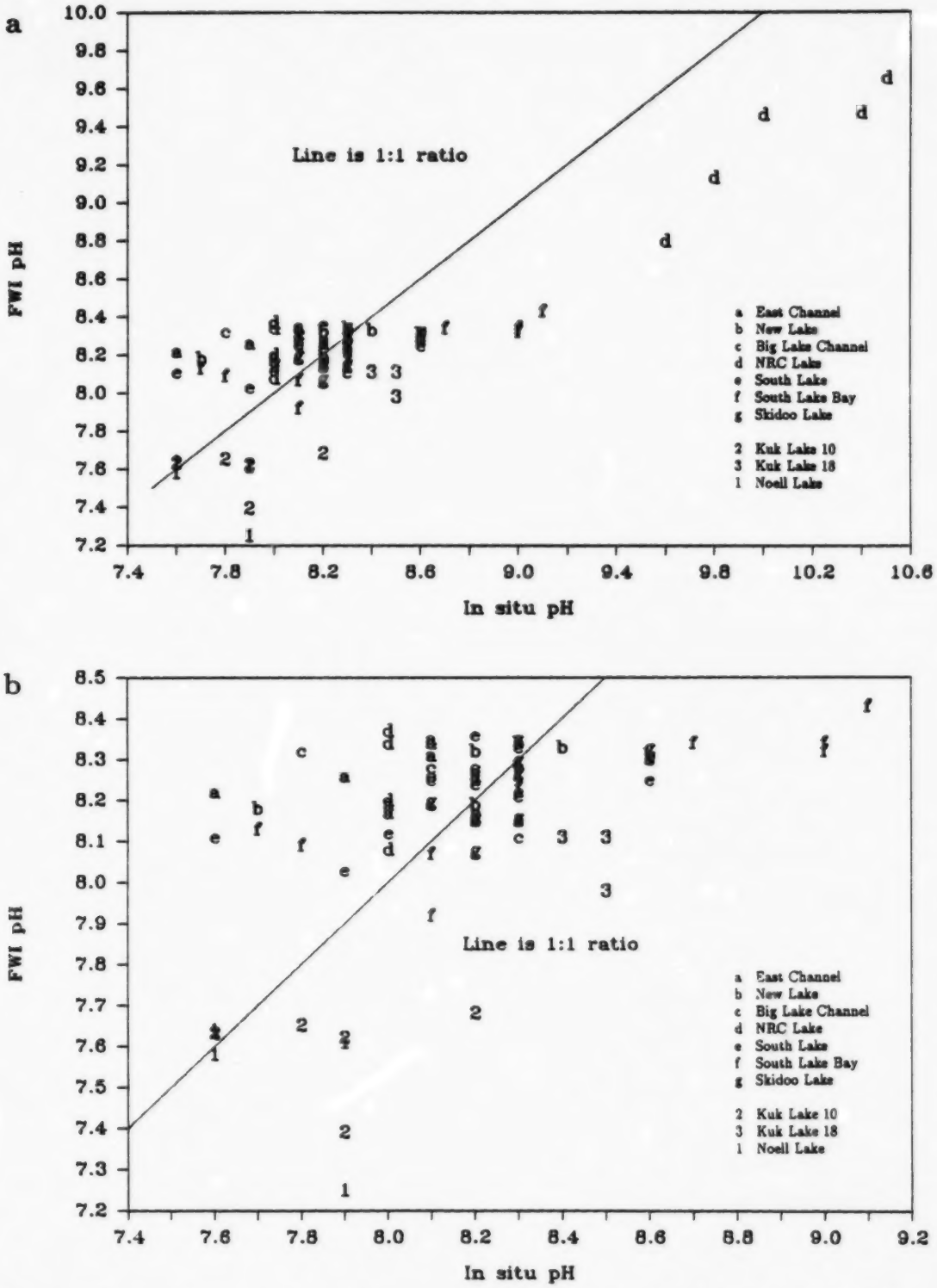


Fig. 32. pH comparison; FWI vs *in situ*. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: as a:, but with some high values deleted.

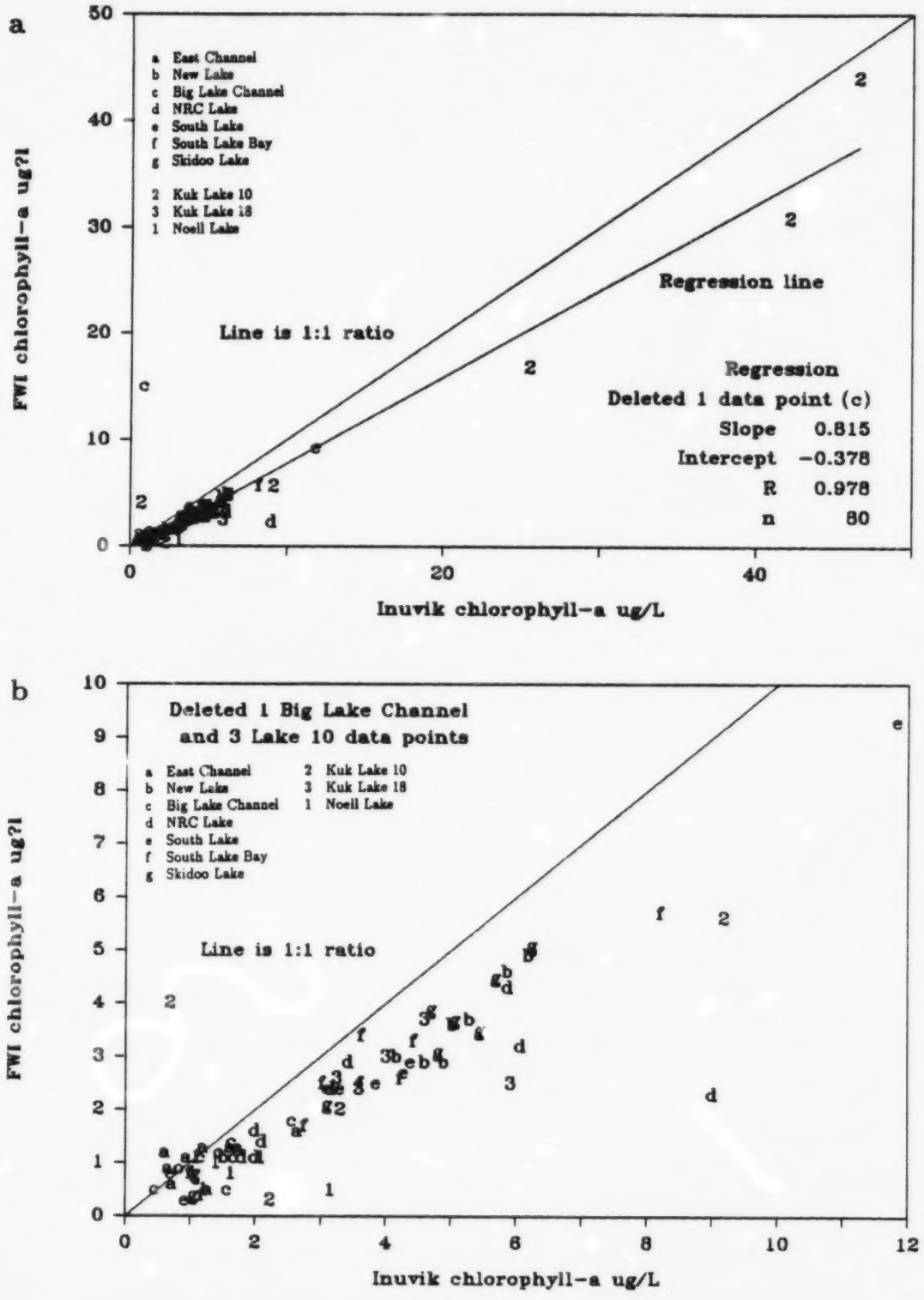


Fig. 33. Chlorophyll-a comparison; FWI vs Inuvik. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: as a:, but with some high concentrations deleted.

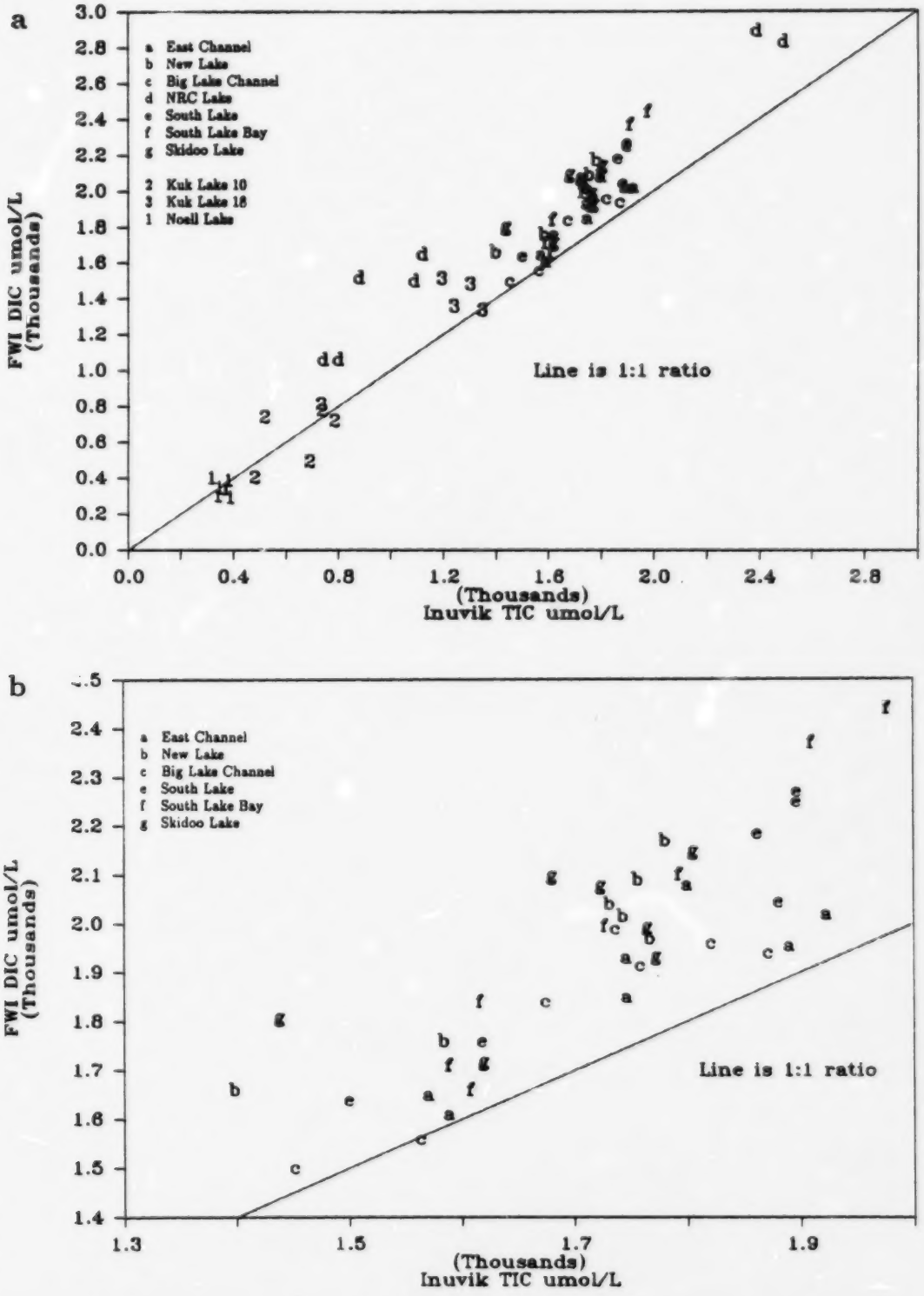


Fig. 34. Comparison of FWI Dissolved inorganic carbon and Inuvik total inorganic carbon; FWI vs Inuvik. a: Noell Lake and stations in the Kukjuktuk Bay and Mackenzie Delta study areas and b: as a:, stations in the Mackenzie Delta study area, NRC Lake excepted.

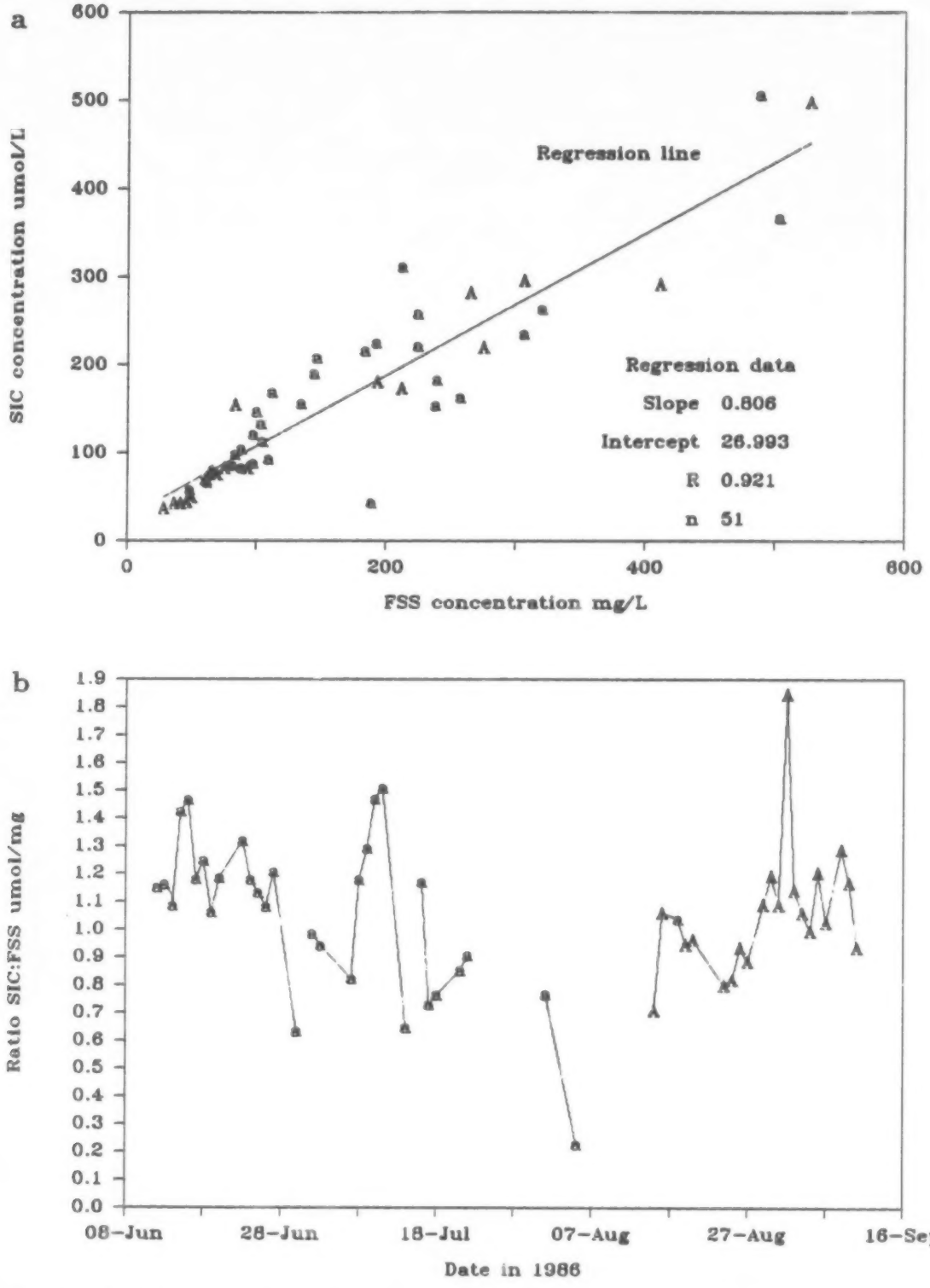


Fig. 35. East Channel suspended inorganic carbon data. a: suspended inorganic carbon vs filtered suspended solids and b: Ratio of suspended inorganic carbon to filtered suspended solids vs time. Upper case letters refer to samples that were filtered with filters prepared at the Inuvik laboratory.

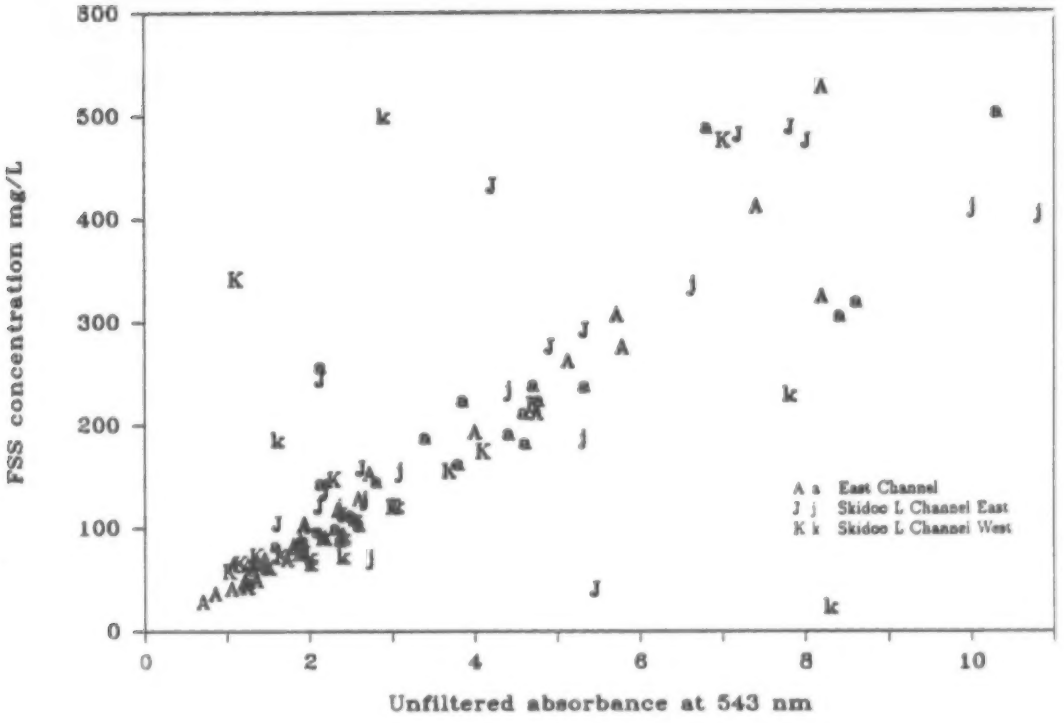


Fig. 36. Filtered suspended solids concentration vs the unfiltered A_{543} for the Delta channels. Upper case letters refer to samples that were filtered with filters prepared at the Inuvik laboratory.

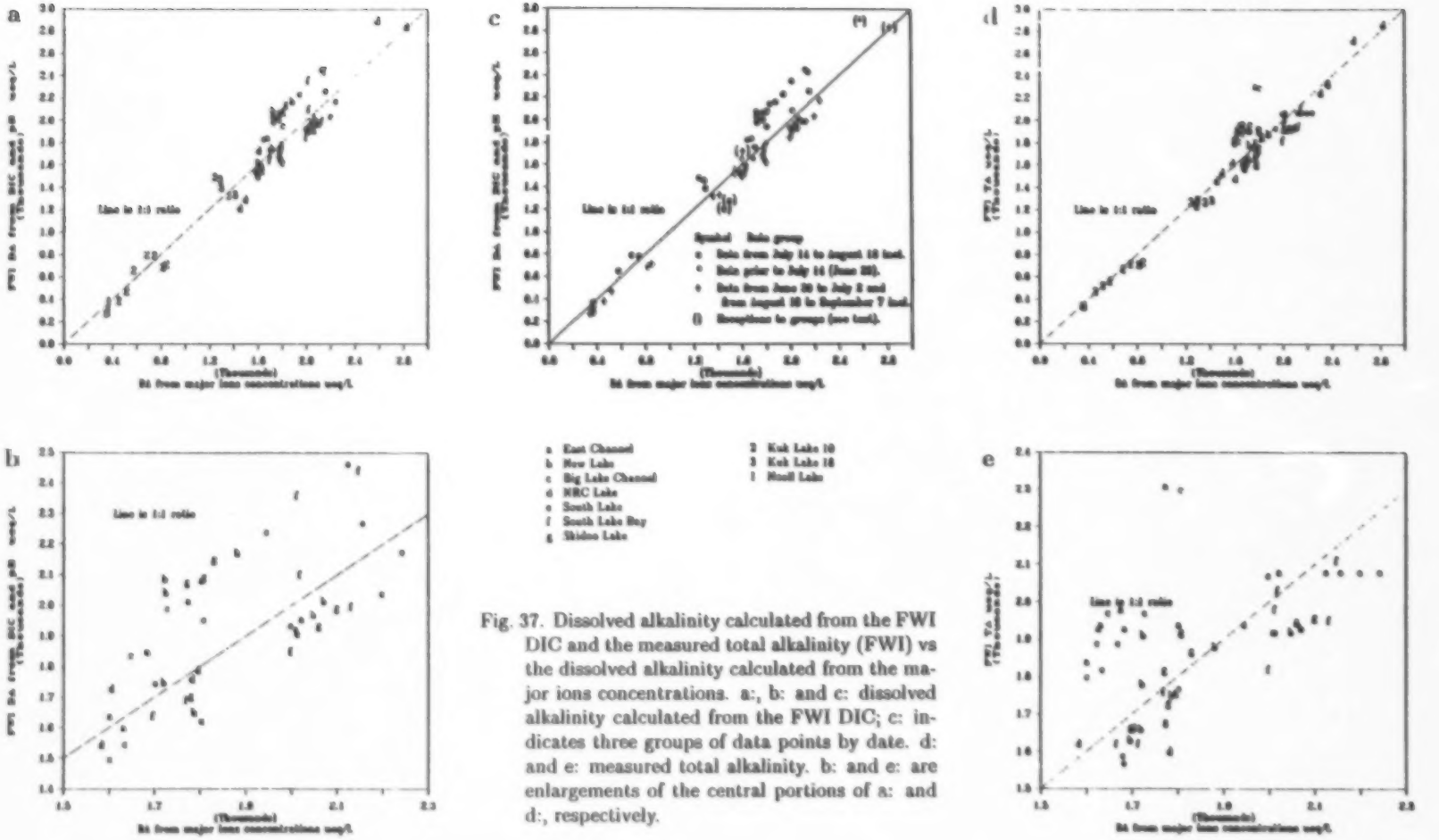


Fig. 37. Dissolved alkalinity calculated from the FWI DIC and the measured total alkalinity (FWI) vs the dissolved alkalinity calculated from the major ions concentrations. a:, b: and c: dissolved alkalinity calculated from the FWI DIC; c: indicates three groups of data points by date. d: and e: measured total alkalinity. b: and e: are enlargements of the central portions of a: and d:, respectively.

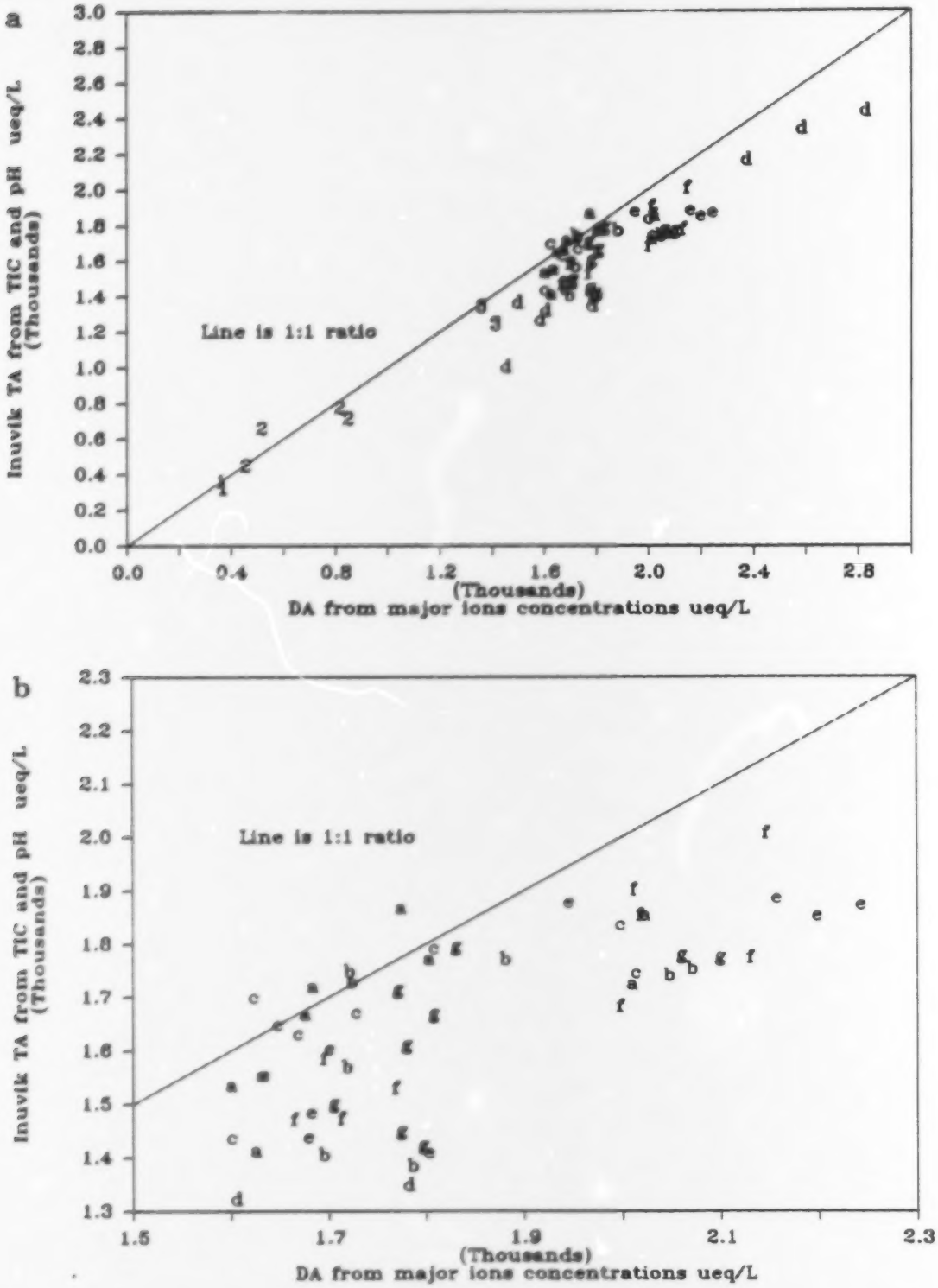


Fig. 38. Total alkalinity estimated from the Inuvik TIC vs the dissolved alkalinity calculated from the major ions concentrations. a: minimum total alkalinity calculated from the Inuvik TIC and b: an enlargement of the central portions of a: and c:, respectively.